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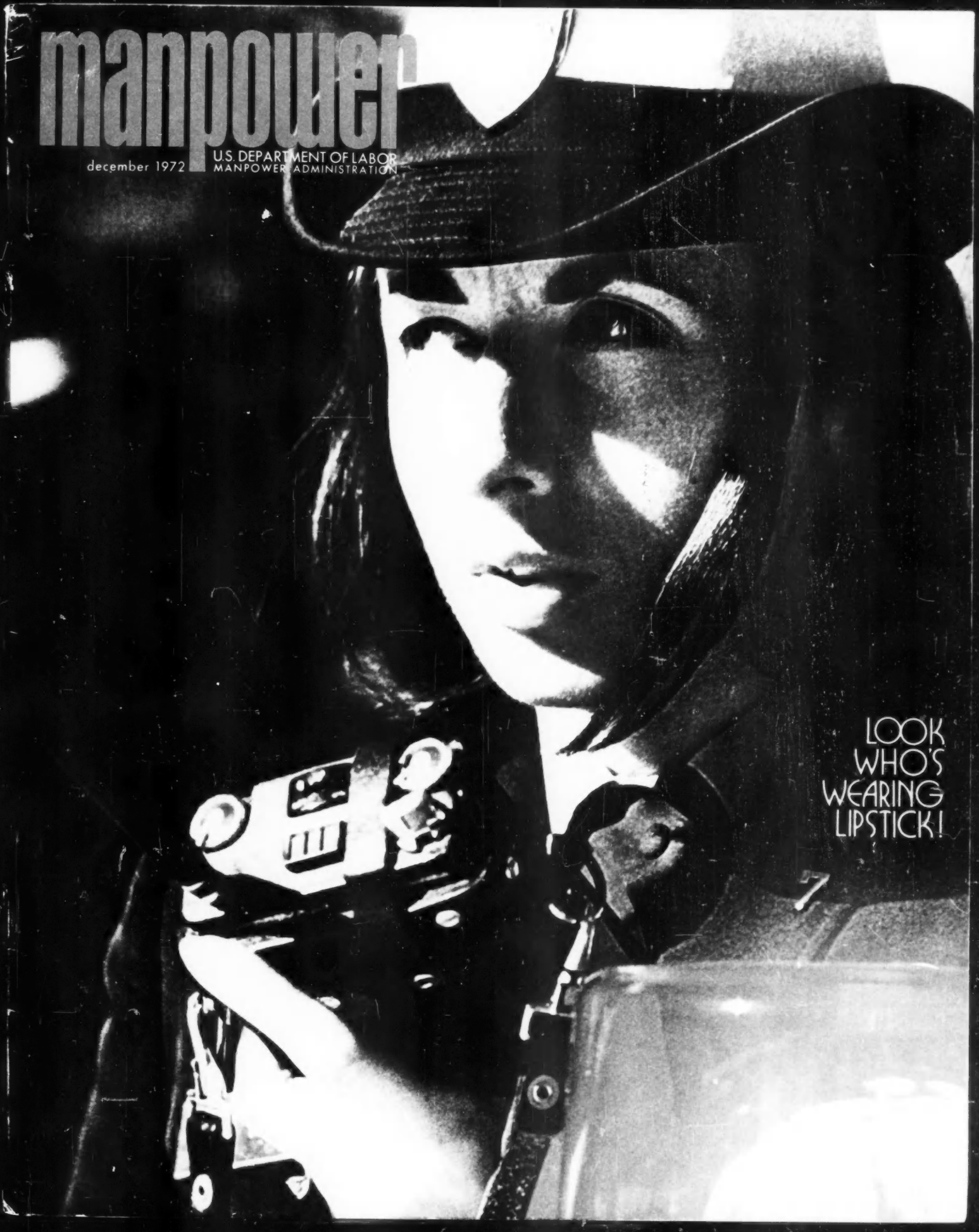

LOOK WHO'S WEARING LIPSTICK!

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U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION

Occupational Stereotypes

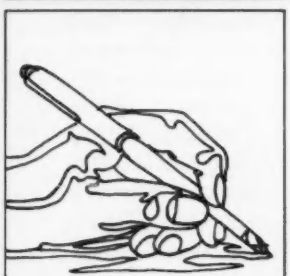
Some years ago a story made the rounds of the Nation's newspapers about a woman who stopped to help a man whose car was stalled. The man expressed his gratitude but explained that his car had an automatic transmission and would have to be pushed at 35 miles an hour before it would start.

The woman insisted; she would be happy to do whatever was required. The man agreed and got behind the wheel of his car. A moment later he looked in the mirror expecting to see the woman edging her car up to his rear bumper to begin pushing. Instead, to his horror, the good samaritan was racing toward him—at 35 miles an hour. The collision was heard for miles around. As it turned out, the anecdote was a flight of fancy, which probably first became airborne when some male chauvinists were exchanging can-you-top-this stories about women drivers.

The facts about women drivers are at odds with the jokes about them. According to the National Safety Council, women have a substantially lower ratio of accidents per miles driven than men. And this isn't because the only driving women do is to take the family's second car to the neighborhood supermarket. Martha Johnson, for instance, pilots a huge diesel rig 300 miles a day. She is one of many women whose refusal to be occupationally typecast may one day make the term "man's job" an anachronism. Other women are walking police beats, pushing wheelbarrows of mortar, analyzing structural stresses in nuclear submarines, and doing a variety of jobs that women rarely did before.

MANPOWER assistant editor Patricia Marshall talked to some of these women about the work they do and why they want to do it. Her report on their experiences, and what these experiences mean for other women who might want to follow in their footsteps—or march off in a new direction of their own—begins on page 2.

Ellis Rottman



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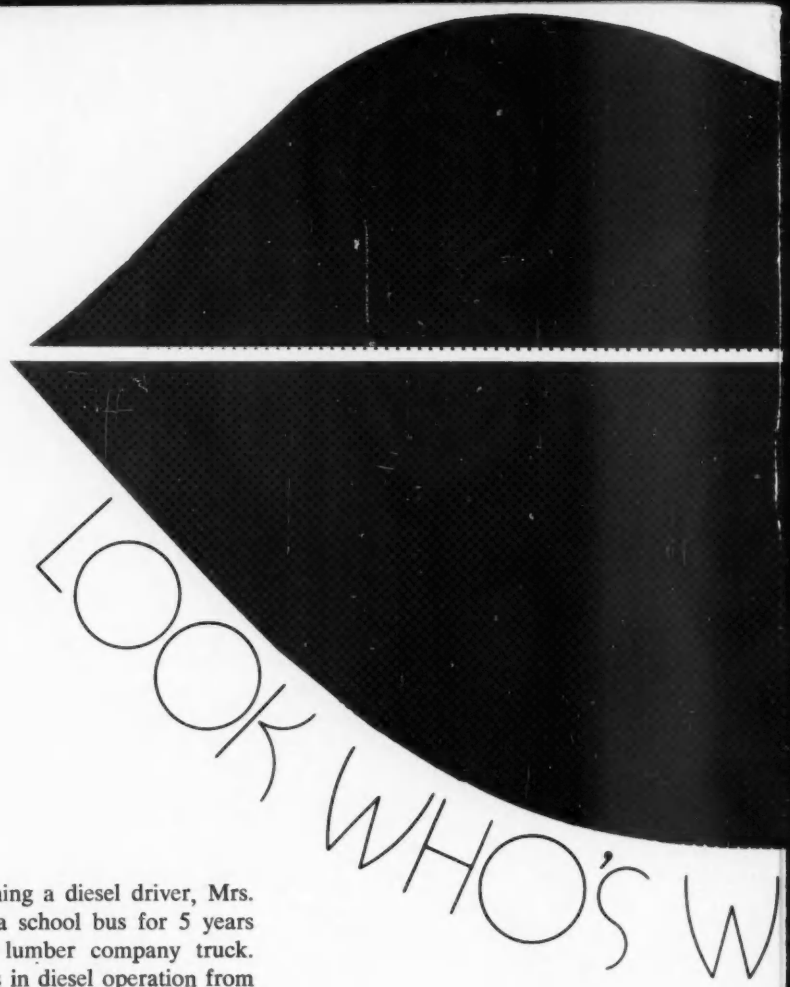


by Patricia Marshall

Truckdrivers, Traffic Cops, And a Rabbi Swell the Ranks of Women in 'Men's Jobs'

When Martha Johnson was a teenager, she dreamed of being a movie star. Mrs. Johnson, who is now 29, became a diesel truck driver instead.

Like many women today, she has rejected the idea that women can be only movie stars, secretaries, nurses, teachers, librarians, or housewives. But Mrs. Johnson doesn't think a woman who holds such views is necessarily an activist. "I don't want to be what people call a 'liberated woman.' I just want to drive a diesel rig," she says. For the most part, she has her family's support. Her husband, a plumber, approves of her job and her two sons, aged 6 and 10, applaud it. "But Mama thinks I've lost my mind," Mrs. Johnson says.

She has never had a job she liked better, nor one that paid as well. She found office work dull and too confining—she was raised on a farm and likes to work outdoors, a preference so well known that her fellow workers call her "Country Johnson." And her $150-a-week paycheck is considerably more than she earned as a clerk-typist.

Before becoming a diesel driver, Mrs. Johnson drove a school bus for 5 years and, briefly, a lumber company truck. She took lessons in diesel operation from a friend for 6 months and acquired skill under varying load and road conditions in handling the larger equipment and complicated gear system. She also learned the basics of diesel nurture, such as changing oil and filters, and the paperwork routines that go with long-distance trucking.

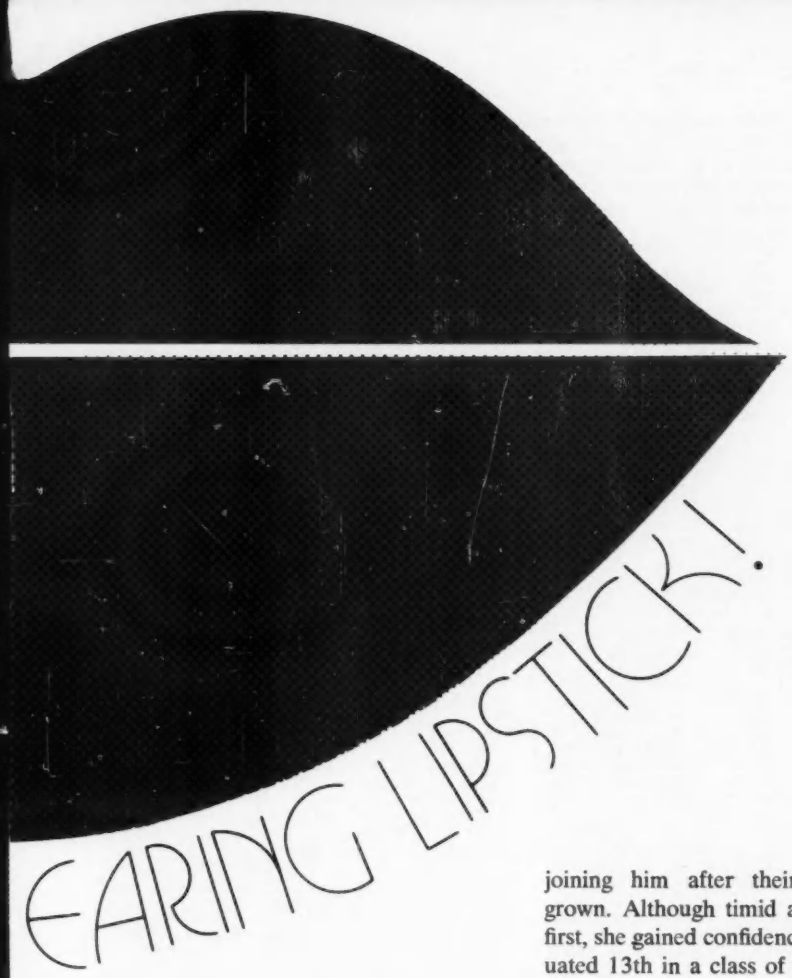
Murry's Steaks in Alexandria, Va., hired her after a road tryout. She was assigned to the newest and finest rig in the company stable, a 13-forward gear tractor and 40-foot refrigerator trailer costing $42,000, and given a 300-mile route to run every weekday. She starts work at dawn at Murry's main plant in Virginia, drives to a branch processing plant in Pennsylvania to pick up a load of meat, and is back on home ground by midafternoon.

Operating a modern tractor-trailer with power steering takes skill and good judgment rather than brawn. Mrs. Johnson, who is tall and slender, feels that because she is doing "a man's job" it is particularly important that she maintain her femininity. Her hair descends in a long fall, her eye makeup is keyed to her costume, and there is a flash of silver nail polish as she shifts gears. For work clothes, she favors a purple satin blouse with a lace ruff at the neck to top off purple velour pants and white boots. Mrs. Johnson says she attracted quite a lot of attention when she first put in an appearance on the road, and once a passing trucker "nearly hit the guard rails when he saw me." But she is now a familiar sight on her route, which she has driven for nearly a year.

Across the Nation, there now are so many women truckers doing cross-country hauls that a trade magazine, OVERDRIVE, recently ran a two-page list of truck stops with shower and other facilities to serve them. A number of the women are "second drivers" who take turns at the wheel with their husbands or some other relative.

Husband-wife teams or, as they more often are called, mom-pop teams are more efficient and bring in more money than single drivers, according to John McGee, vice president of Refrigerated Transport in Atlanta. While one person rests in the sleeper at the rear of the tractor, the other keeps the carrier rolling, thus cutting down

Mrs. Marshall is assistant editor of MANPOWER.



on delivery time and the number of days on the road. The Atlanta firm began using these teams 8 years ago to deal with the problem of male drivers quitting and taking other jobs because their families complained that they did not spend enough time at home. The company selected two wives without small children and paid for their driver training. Results were so good that Refrigerated Transport now has 35 husband-wife teams on its roster.

The firm no longer pays for training, McGee says, because the idea has spread and couples are meeting their qualifying and equipment needs themselves. In effect, the teams are small family businesses. Husbands and wives own their tractors and contract with firms like Refrigerated to haul shipments in company-owned trailers.

Herbert and Betty McMasters of Greensboro, N.C., one of the couples driving for Refrigerated, find that their income is greater now than when he drove by himself, taking the rest stops required by Federal regulations, and she worked as an operating room scrub nurse. McMasters, a trucker for 25 years, talked his wife into joining him after their children were grown. Although timid about the idea at first, she gained confidence when she graduated 13th in a class of 23—she was the only woman—from the driver training school run by North Carolina State University at Raleigh.

For many women, long-distance hauls are impractical. However, there are indications that some jobs in local trucking are beginning to be available to women. Early last summer, for example, the United Parcel Service and the U.S. Equal Employment Opportunity Commission negotiated an agreement under which the company is to open up all jobs in its Pacific region, including driver slots, to women. The agreement also stated that United Parcel would make an intense effort to hire women from minority groups.

Employment barriers to women also are starting to tumble in police work. Although there are about 6,000 policewomen in the United States, "the vast majority of these women have been hired to do jobs that women are thought to perform better than men, such as working with juveniles, female prisoners, or typewriters," according to *Women in Policing*, a recent report by the Police Foundation in Washington, D.C., a nonprofit agency set up by the Ford Foundation to help U.S. police departments develop new and promising programs.

Many police departments also have special entrance requirements for women, the report says. A common practice is to require a college degree from women and a high school diploma from men. Some cities give women different entrance examinations, keep separate lists of eligible police candidates, and all cities surveyed by the Foundation stopped hiring women for police work long before they met their total personnel needs. But in a few cities, there are signs of change.

All but two of the 37 policewomen in the Miami Police Department are doing work identical to that of male officers, including foot patrol and assignments in vice squad, traffic, homicide, and criminal investigation units. A few women in Peoria now are doing routine patrols in cars, motorcycles, or on foot, and Philadelphia has begun experimenting with women on patrol.

The District of Columbia's police department is hiring women under the same educational, height, and other standards as men, although separate registers still are kept for men and women candidates. Today the department has more than 200 policewomen, triple the number 2 years ago, and in two districts is trying women out on uniformed patrol around the clock.

This month the Urban Institute, which is working closely with the police department on this experiment, plans to complete its evaluation of how well the idea is working and what the police and public think about patrolwomen. Since the experiment is perhaps the largest of its kind in the

LIPSTICK! *continued*

*Fannie Youngblood **(left)**, a production line worker at a truck and auto frame plant in Milwaukee, finds that welding is not as hard as she thought it was before she took training. An important feature of her training, Mrs. Youngblood says, was conditioning her body to lift auto parts so she could keep in step with men on the production line.*

*Florida contractor Ouida Baggett Regan **(center)** is the first woman trustee of the National Association of Home Builders' National Housing Center Council. Although she has been a contractor for almost 20 years, she was greeted at a recent builders' convention with: "So you're the woman builder! You look like another dumb blonde to me."*

*Martha J. Kinter **(right)**, a member of the District of Columbia metropolitan police, hands out a ticket to a driver who has just run a red light. Officer Kinter, one of relatively few women in the U.S. with patrol duties, is in an experimental program to assess the results of using women in police work traditionally reserved for men.*

country, the Institute's findings seem likely to have a major effect on future directions for women in police work in other cities as well.

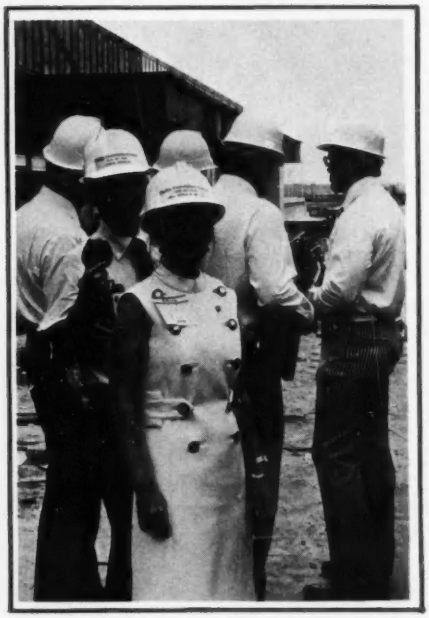
Preliminary accounts indicate that the policewomen have been handling themselves with professionalism, poise, and courage. Last spring, one had to plunge into an unruly crowd to help rescue a patrolman. She emerged with a gash on her ear, some bruises, and the well-intended accolade that she "had fought like a man."

Officer Martha Kinter, one of the patrolwomen in the pilot study, says that much activity on police patrols is more a form of social work than a test of physical endurance. It involves keeping calm, offering assistance, and knowing other agencies that can help. She is on duty in a low-income area where police calls often involve family and neighborhood problems.

One of the most difficult situations she has faced was on a call to a house where a young man was punching his fist through all the windows and breaking everything else within reach. His mother and grandmother, who were alone with him, were terrified and reported that for some time he had been showing signs of severe mental disturbance. Officer Kinter and her partner finally persuaded the youth to let them take him to a mental hospital. Her feelings about the incident reflect the values she finds in police work: "We felt good about being able to help him before he could hurt himself or someone he loves," she says.

Starting salary for police officers in Washington, D.C. is $10,000 a year. In addition, the police department pays for after-hours courses officers take to advance themselves professionally. Officer Kinter is studying at American University to complete requirements for a major in police administration, a switch from her prepolice major in elementary education.

Although the special requirement that women have a college degree appears to



be on its way out of police work, the fact that more and more people applying for police jobs have graduated from college makes degrees increasingly desirable for all entrants. That is the opinion of Lieutenant Helena Ashby, a police officer for 8 years with the Los Angeles County Sheriff's Department and now on leave for an assignment with the U.S. Department of Justice's Law Enforcement Assistance Administration. "With this kind of competition for jobs, exams also will be getting tougher, and so will requirements for promotion," Lt. Ashby says.

In addition, she forecasts changes in police training methods as more women take up regular duties. "Few women have had the physical training boys get in contact sports and young men get in military service," she notes. "Bringing women up to par physically is simply a matter of recognizing that they may need more training than men in this area."

In other phases of police work, women already have proved they can handle themselves as well as men, Lt. Ashby says. "After the riots in the Los Angeles area, women were particularly valuable in working with militant groups," this black police officer notes. "In our black society there is a great reverence for women and often we were able to reach people who would not talk to our male partners." About a year ago the winning marksman team in the California police olympics was made up of women from the Los Angeles County Sheriff's Department, Lt. Ashby says.

The ministry is another old male preserve which women gradually are entering. Last spring, Sally Priesand became the first woman ordained to the rabbinate in this country. Her only known predecessor in the history of Judaism was a German woman who practiced primarily in old-age homes until her death in a concentration camp. A member of Reform Judaism, 26-year-old Rabbi Priesand now is assistant rabbi at the Stephen Wise Free Synagogue in New York City. Among her duties in this post are preaching sermons, officiating at weddings and funerals, making hospital calls, and teaching confirmation classes.

When Martha Johnson (left) begins her workday each morning, she faces a 300- mile round trip behind the wheel of a $42,000 tractor-trailer.

Sally J. Priesand (center), first woman rabbi in the United States, holds the Torah, a parchment scroll containing the Five Books of Moses. Rabbi Priesand became the second woman in history to enter the rabbinate when she was ordained last spring.

Barbara Fennessy (right) is one of today's growing number of female foresters. Among her tasks as a trainee with the U.S. Forest Service are doing surveys, locating boundaries, and marking timber for sales in the Suislaw National Forest.

She did not set out to be "the first anything," Rabbi Priesand says. She is deeply religious and from the time she was 15 years old she has wanted to be a rabbi. "I'm very grateful to my parents," she says, "because they didn't throw up their hands and say that it was no kind of job for a nice Jewish girl."

A native of Cleveland, Rabbi Priesand took a combined program of studies at the University of Cincinnati, where she got a baccalaureate degree in English, and 8 years of courses at Hebrew Union College —Jewish Institute of Religion, "where everybody thought I came for a husband" until they got to know her better. Overall, she says, she was very well received at school and by the congregations she has served—only 2 out of 7 congregations would not accept her as a student rabbi.

Coming up the trail behind pioneer Priesand is Sandy Eisenberg Sasso, a student at the Reconstructionist Rabbinical College in Philadelphia. Mrs. Sasso, whose husband also is studying to be a rabbi, expects to be ordained in 2 years. Two other women students—Ilene Schneider and Rebecca Trachtenberg—hope to be ordained in 4 years. As yet, women are

not allowed to become rabbis in the Conservative and Orthodox branches of the Jewish religion.

Although there are more women ministers than rabbis, their ranks still are thin. The United Church of Christ, for example, numbers about 240 women among its 9,000 ministers, but a number of these women have teaching assignments and only about 40 have their own parishes.

The Episcopal Church approved the ordination of women deacons—a post ranking below the priesthood—at its last convention in 1970. Already, there are signs of concern within the church about keeping women confined to this lowest order of the ministry. Last spring, the Episcopal Diocese of New York voted by large majorities among clergymen and laymen alike to petition next year's convention to make the necessary canonical changes needed for women to be ordained as priests. And at the Union Theological Seminary, training grounds for many U.S. ministers, the board of directors has voted to raise the number of women students from 20 percent to 50 percent of its student body.

Meanwhile, out in the Nation's forests, women have been hired by the U.S. Forest Service for seasonal jobs on slash and burning crews, on fire and tree planting crews, and as full-time foresters. A few others are getting jobs in the lumber industry.

Barbara Fennessy, one of the women who is giving the Forest Service a new look, works in the Suislaw National Forest as a forestry trainee earning $6,500 a year. Since teenage, when she saw pictures of "smoke jumpers" parachuting from planes to put out forest fires, she has had her heart set on a forestry career. She pursued her dream by majoring in forestry at Washington State University, from which she graduated in 1971, and by working summers on fire crews and as a forestry aide for the Forest Service.

The work is hard but stimulating physically and mentally, Miss Fennessy says. What she likes most about it is being outdoors and having a great deal of independence while she works. She goes out on her own on such tasks as inspecting and marking timber for sales, inspecting reforestation areas, and surveying streams and boundaries. The going usually is rough. "There hasn't been much traffic in areas where I go, and they are brushy and steep," she says. "Most of the time I have to hoof it and beat my way through the brush." She plans to stay in the Forest Service and eventually get into the broad field of reforestation.

Few women enrolled in forestry schools until the mid-sixties, according to a Forest Service employment specialist. Then the numbers began to climb, and by 1970 there were nearly 700 women undergraduates in these schools. "For years the Forest Service said that forestry was man's work—but this has changed too," this specialist reports.

But competition for forestry jobs is very keen, he warns. A look at the statistics on education and jobs suggests why. There

"Safe!" cries Bernice Gera. But when Mrs. Gera won a court battle professional umpiring was legally out as an exclusive occupational preserve for men. After struggling for 5 years, Mrs. Gera umpired one professional game, then quit because of resentment of her presence on the diamond.

A swarm of hero-worshiping youngsters surrounded sportswriter Kiki Levathes when she interviewed two Washington Redskins football players who tried their hand at basketball in a benefit performance at a local high school.

were 17,000 forestry undergraduates in U.S. colleges in 1970 but there were only 22,000 persons who had jobs as foresters. Moreover, the Forest Service—the largest single employer, with about a quarter of working foresters on its rolls—has hired decreasing numbers of entry-level foresters since 1963. In 1971 only 97 persons were hired in such jobs, and there have been no new hires since. Should any jobs become available, they are likely to go to veterans. The job outlook is brighter, the Forest Service spokesm n says, in such related fields as hydrology, soil sciences, and landscape architecture.

Women in the construction industry still are somewhat few and far between. However, a number of women have made their marks as successful general contractors, subcontractors, estimators, construction field office managers, and the like.

Ouida Baggett Regan, one of Florida's leading home and apartment builders, got her start in the business when she was 21 years old. A voice major in college, Mrs. Regan was a divorcee, had a baby to support, and decided she could make a better living for herself and her son in construction than she could by taking the school teaching job she was offered. She had no experience in home building, but she liked what she saw of the business when she did office work for a large contractor during her college days.

Learned by Trial and Error

"The first thing I did was find a bank that would do business with me," Mrs. Regan says. "Through trial and error on my first houses, I learned to put a house together and to know good construction practices." Her first job was a $4,500 house (that was in 1950), and when she lost money on it because she needed better cost and quality controls, she started doing the subcontracting and purchasing herself. She built six more houses, then started developing pockets of land which were too small for other builders to bother with.

She continued to put a construction organization together, and to depend less on subcontracting. At the same time, she had to build credit responsibility. Her youth was as much a deterrent to credit as her sex, Mrs. Regan says. At one point, she found it helpful to add a number of years to her age on a credit company reporting form in order to get long-term financing.

She lived frugally in those years, plowed most of what she made back into the business, and worked very hard. "For the first 10 years I didn't do anything but work," she recalls. "I was on the job before the men came to work and still there when they left. Then I went home to take care of the paperwork. I have fallen asleep at my desk at 4 a.m., then gone back out on the job before 7."

Nowadays, Mrs. Regan does less homebuilding and more land development so that she can spend more time with her adopted, teenage daughter and on her varied civic and professional interests. Among the many achievements she can look back upon are a $3 million apartment building (her home is the penthouse); a subdivision with homes for 1,200 middle-income families, a park, and a 90-acre "womanmade lake"; and low-cost single family housing in Puerto Rico.

Today many colleges and universities offer majors in building construction, Mrs. Regan says. She thinks that women who are interested in getting into construction might find this route less costly than starting green as she did.

Some women in construction have followed in the footsteps of fathers or husbands who were willing to show them the way. But June Conlan, a construction laborer in a small city in New York State, had to cut her own paths. She is a lawyer's daughter and the wife of a construction worker who recently has been unemployed. The going has been rough, Mrs. Conlan says. It took 10 years of persistent effort to get into the Laborer's Union, and now that she is a member she finds it hard to get work. There is keen competition for jobs, which pay $7.15 an hour in her area, and she usually is passed over when she makes her daily appearance at the union hiring hall. When she succeeds in being sent out to a job, she must often face a hesitant employer and sometimes a hostile one. Few think this slender blonde mother of seven can handle the work.

She Simply Likes the Work

Why does she go to so much trouble to prove that she can? Because she likes being a laborer—it is just that simple, Mrs. Conlan says. She tried "women's jobs" such as waitress and sales clerk, but found them boring and without challenge. As a laborer, she gets great satisfaction from meeting the heavy physical demands involved in pushing wheelbarrow loads of mortar, digging trenches, and lifting cement blocks for 7 hours a day. Sometimes she must call up great reserves of energy and determination, particularly when the temperature is in the nineties and when she has been out of work long enough to get out of shape. But at day's end, she carries home a feeling of accomplishment as well as good pay. "I feel a greater person for having done it," she says.

A number of women have administrative jobs in today's construction industry. When the National Association of Women in Construction (NAWIC) surveyed its 5,600 members last year, more than 40 percent of those responding said they were office managers, secretary-treasurers, or had other management and administrative duties. About a third were doing clerical work, and a quarter put themselves in the "other" category—they were estimators, manufacturers' representatives, construc-

MORE ON 'WOMAN'S WORK'

Reports, films, and other information on nontraditional jobs for women mentioned in the accompanying story are available from sources listed below.

Police Foundation, 1015 18th St., NW., Washington, D.C. 20036
Women in Policing, 96-page Foundation report, $3.00.

Society of Women Engineers, United Engineering Center, Room 305, 345 East 47th St., New York, N.Y. 10017
Women in Engineering Careers, What You Should Know About Women Engineers. Free leaflets.

Booking Department, Bureau of Audio-Visual Instruction, University of Wisconsin, P.O. Box 2093, Madison, Wis. 53701
Never Underestimate the Power of a Woman, 16 millimeter color/sound movie, 19 minutes. Rental $6.75, request in writing.

Women's Bureau, U.S. Department of Labor, Washington, D.C. 20210
The Myth and the Reality, Why Not Be An Apprentice, Why Not Be An Engineer, Changing Patterns of Women's Lives. Leaflets. Single copies free.

National Association of Women in Construction, Washington, D.C., Chapter, 5340 Odell Road, Beltsville, Md. 20705.
Hard Hats . . . High Heels, 10-minute, 16 millimeter color/sound movie. Purchase, $90 or $25 for 30-day rental.

Nuclear project engineer Virginia D. Christian (bottom left) does stress analyses on plans for Navy submarines. An analytical mind and mathematical aptitude, rather than the ability to do heavy work at a construction site, are the abilities needed by today's engineer. But few young women are aware of the satisfying, well-paying careers engineering can offer them, according to the Society of Women Engineers.

Sandra Karn (below right) is one of about 800 women among more than 25,000 veterinarians practicing in the U.S. She thinks young women interested in being vets should get some experience as a helper in a veterinary hospital and should talk to a "prevet" college advisor. Today, 10 percent of new veterinary students are women.

tion news reporters, or had a combination of managerial and clerical duties.

More than a third earned $6,000-$8,000 a year; 26 percent made $8,000-$10,000; and 17 percent earned $10,000-$15,000. At the low and high ends of income, there were 17 percent who made $6,000 or less, and 5 percent who earned more than $15,000.

To inform employers and students of the role women are playing in today's construction industry, the Washington, D.C., chapter of NAWIC has produced a 10-minute movie, "Hard Hats . . . High Heels." The national association currently is developing a 12-week course on the basics of construction—blueprint reading; material takeoffs; terminology; equipment; and costing, bidding, and bookkeeping procedures—which will be used to interest high school girls in the construction field as well as to upgrade women already working in construction.

Sex Barrier Diminishing

Today's woman also is becoming a veterinarian, sports reporter, engineer, highway builder, and welder—fields which women in years past had trouble entering unless they were greatly overqualified or there was a wartime shortage of men. Now trained and able women are finding sex no longer is the great deterrent it once was in such jobs. Among those who have made this discovery are:

• Fannie Youngblood, a welder. Mrs. Youngblood moved off welfare into a job as a welder on the A. O. Smith truck and auto frame production line in Milwaukee, thanks to the Manpower Administration's Job Opportunities in the Business Sector (JOBS) Program. She now earns $5.50 an hour and finds that welding "is not hard once you get the hang of it." As the family breadwinner—she is divorced and has four children to support—she is pleased that her job will enable her to save to buy a house and to put her children through college.

• Virginia D. Christian, a nuclear project engineer. Mrs. Christian earns more than $11,000 a year doing structural analyses on nuclear submarines built for the U.S. Navy by General Dynamics/Electric Boat in Groton, Conn. She was working on her master's degree in physics "when I decided to become Mrs. instead of M.S." Her husband is a chemistry laboratory technician at General Dynamics. Mrs. Christian's first job with the firm was as a scientist and mathematician doing mechanical engineering. After on-the-job training, she moved to her present job as a civil engineer. She has three children, was the first black and second woman ever elected to the Norwich City Council, and is the first black member of the State Board of Education.

Only some 6,000 of the 760,000 engineers in the U.S. are women, according to the Society of Women Engineers. Why so few? Because many girls have never heard of women in this field and don't think of it as a possible career, the Society says. Also, many believe that engineering is all heavy work on construction sites even though the profession's most common work site is an office. Even those engineers who must spend much of their time on construction sites are "present to see that things are done right, not to personally wield a sledgehammer," the Society points out.

• Kiki Levathes, sports reporter. Miss Levathes, who has a master's degree in journalism from Columbia University, worked on the woman's section of the WASHINGTON (D.C.) STAR when she convinced the sports editor that a woman reporter could widen the appeal of sports pages. During her stint in sports, Miss Levathes wrote feature articles centering on crowd psychology at football games, the fine physical line between football and ballet, the stories people tell at the gate to account for their lack of tickets, and the pregame sex life of athletes. When she decided to move to the news department, the newspaper hired another woman to write for its sports section.

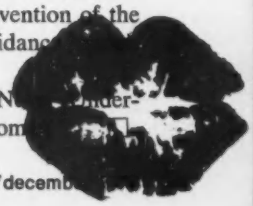
Today the numbers of women in "men's jobs" still are small. Many young women find it hard to visualize themselves as truck drivers, carpenters, or welders. In her work as director of an experimental project funded by the Manpower Administration, "Women in Wisconsin Apprenticeships," Norma Briggs found that "we have all inherited and are still perpetuating cultural stereotypes of girls and women that run directly contrary to the facts and needs of the world of work today." The purpose of the Wisconsin project is to develop methods for increasing apprenticeship opportunities for women in that State.

Pioneers Require Courage

Being one of the first to cross the sex barrier in employment, Mrs. Briggs learned, takes "the kind of courage with which not everyone—male or female—is endowed. It is not simply a matter of finding out whether you can do the job (while) being on trial in a highly visible and often publicized situation, but sometimes . . . it means being prepared to cope with an all-male work/social situation where evolved customs, language, and habits have been predicated on a one-sex grouping, and with the individual reactions (hostile, protective, derisive, ribald, gentlemanly, derogatory—rarely neutral) of the men whose group has been invaded."

In February, Mrs. Briggs will show a film developed by the Wisconsin project at a panel discussion on "The Skilled Trades: Ways Out of the Female Job Ghetto" at the national convention of the American Personnel and Guidance Association in San Diego.

The title of the film: "N[illegible]nder-estimate the Power of a Wom[illegible]"



Tests Win A Vote of Confidence

Study Finds Written Exams Can Predict Job Performance Fairly for All Groups

A comprehensive 6-year study of racial bias in written employment tests has revealed that carefully selected tests predict job performance fairly for minority as well as majority groups.

That is the conclusion of the U.S. Civil Service Commission and the Educational Testing Service, a nonprofit educational measurement and research organization, which jointly carried out the recently completed study.

The study, conducted with a Ford Foundation grant, points out that extreme care must be taken in selecting predictive tests and in assessing job performance if unbaised results are to be obtained.

"One key objective of this study from the outset was to explore the real facts behind the oft-expressed belief that tests are biased against minority groups," said Educational Testing Service (ETS) psychologist Dr. Joel T. Campbell, who directed the project. "Six years later, we found that belief was wrong, if you define bias as meaning the scores are unrealistically low in relation to performance on the job."

Critics Cite Inherent Bias

Millions of people take pre-employment exams each year as part of hiring practices in government and industry. But critics have long contended that because of inherent bias the exams discriminate against minority groups and keep them out of jobs they could perform adequately.

Campbell said the study found that persons who do poorly on job-related tests, regardless of race, don't do well at work either. Likewise, a good test score was reflected in good job performance.

Campbell stressed that the study does not indicate why there is a correlation between test results and job performance. "The educational and social background that can adversely affect test performance may also affect job performance. Now we must learn how and why this situation develops and work to improve it," he said.

The study involved 1,409 Federal employees, including 423 blacks and 174 Spanish-speaking Americans, at a number of locations around the country in three occupations: Medical technician, cartographic technician, and inventory management specialist. Employees in each occupational group were given a series of job-related tests especially designed for the study. Their test scores then were compared with job performance to determine if the tests accurately predicted work performance. Although the written tests used were prepared specifically for the study, they are "typical of many employment tests," according to the Civil Service Commission.

To obtain the necessary measures of job performance against which to judge the validities of the tests, a supervisor's rating scale was prepared for each of the three occupations. For medical technicians and cartographic technicians, two additional performance measures were developed—a job knowledge test and a work sample.

Cartographic technicians, for example, were asked to construct a full map of an area when they were given only some of the information regarding characteristics of the terrain. This is the same kind of situation which often occurs on the job when aerial photographs are used as a basis for map making.

It was not feasible to develop a job knowledge test for inventory management specialists, the Civil Service Commission said, so only a work sample was employed as an objective job performance measure for this group. Both the subjective performance evaluations, consisting of supervisors' work ratings, and the objective measurements, consisting of a job knowledge test, a work sample, or both, were collected on all 1,409 persons.

Substantial background information also was gathered on those studied to make sure that members of each ethnic group were similar in age, experience, education, and training, the Civil Service Commission pointed out. Also, each job was studied to insure that all ethnic groups in an occupation were performing essentially the same kind of work.

Careful Job Analysis Needed

Statistical analyses of the study data showed that "aptitude tests are likely to be valid for an occupation if the tests are selected after a careful job analysis," said William A. Gorham, associate director of personnel research and development for the Civil Service Commission, in a recent article in the CIVIL SERVICE JOURNAL. Furthermore, he added, "tests which work well for one ethnic group work about as well for the others."

Noting that minorities did not do as well on the tests as nonminorities, Gorham said this is generally true of the results of aptitude tests. He went on to point out, however, that "many individual members of minority groups scored very well on these tests, and many nonminority group members did poorer than the average for minorities."

The lower average score achieved by minorities "does not in itself mean a test is unfair because minority group members also tend not to do as well when objective measures of job performance are used," Gorham said.

Gorham said that on the "subjective supervisory ratings" that were part of the study "minorities did just about as well as nonminorities." He described the supervisory ratings as "among the best, most carefully developed" he had ever seen,

but said "they exhibited a lot of problems upon analysis. These problems were serious enough to raise a question as to the acceptability of the ratings in evaluating test fairness. In this instance, the determination of the researchers in developing objective alternatives to ratings really paid off."

Study Implications Listed

Preliminary implications of the study for the Federal Government, according to the Civil Service Commission, are:

- If tests are carefully selected on the basis of thorough job analysis, they can predict job performance fairly. Test bias must be guarded against, "but tests per se simply do not deserve the charges that are currently popular among critics of merit systems" who regard them as unfair.
- "The study showed nothing about the causes of low test and low job performance," a subject on which only "sketchy information" is now available.
- Since carefully selected and properly used tests are not discriminatory, more attention should be given to "other aspects of the employment system which may be subtly discriminatory against minorities and women."
- Any successful examining program must be based on sound job analysis. This applies to job evaluation and pay as well as testing. Further uses of job analysis methods need to be developed.
- Studies such as this one "are often technically impracticable, and the costs are high. Other less costly but equally valid professional methods of validation should be emphasized."
- More research is needed on the many unanswered questions in the area of employee selection and fairness.

The study and its findings were discussed at an invitational conference held recently in New York by ETS and attended by educators, psychologists, and representatives of industry and government from around the country. Several experts were invited to assess the meaning of the study, and they emphasized that although pre-employment tests are useful, they should be viewed as only one tool in selecting or promoting personnel.

Robert M. Guion, professor of psychology at Ohio's Bowling Green State University told the conference that charges of test unfairness arose when minority applicants were routinely rejected in the past, because of "company policy."

"A myth about test unfairness resulted," said Guion. He also noted that the results of previous studies of the subject of test bias were too limited to be useful and were often little more than statistical artifacts.

Dr. Roscoe C. Brown, director of New York University's Institute of Afro-American Affairs, said that any consideration of the study's implications for blacks should not lose sight of the "hostile social climate within which blacks and other nonwhite minorities live in the United States."

Minority groups start their educational and social careers from a lower point than most whites and this is reflected in pre-employment test scores, Dr. Brown said. "I suggest that the basic approach to use in selecting minorities is one which involves a relatively low cutoff point for entry to jobs followed by on-the-job training."

Raymond Jacobson, director of the Bureau of Policy and Standards of the U.S. Civil Service Commission, said "these studies have shown clearly that public employers should not resort to flight from well-selected employment tests nor should they resort to differential use of test results for minority groups."

Dr. Lewis E. Albright, director of manpower planning and development for Kaiser Aluminum, said the study "should serve as a landmark for many years to come." Dr. Anne Anastasi, professor of psychology at Fordham University, called it "in many ways a model for the validation of personnel selection tests."

But another conference participant, Edward J. Casavantes, executive director of the Association of Psychologists for La Raza (an organization representing the Spanish-speaking), called the "study data and conclusions highly suspect," because they did not represent the real life circumstances faced by the job incumbents. The study, he claimed, did not take into consideration the sociological and environmental factors which may affect the source of prediction bias.

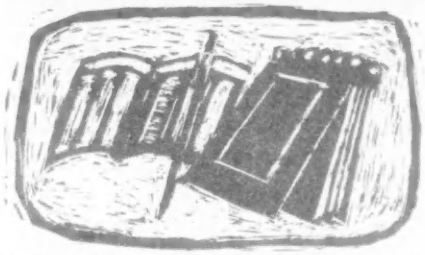
Findings 'Unacceptable'

He said that at one Federal installation included in the study, a Civil Rights Commission investigation turned up charges of discrimination by minority employees who complained of a biased learning ability test used for promotion and supervisory bias in making employee appraisal ratings.

Minority employees in Federal jobs are not representative of their ethnic group, Casavantes contended. He said there is bias in the selection of minority workers, and this bias was reflected in the participant sample and affected the research results.

Casavantes also criticized the study because the participants knew that ethnic variables were a primary concern of the research. This information probably influenced subjective evaluations such as employee ratings, he said. Casavantes concluded that the study findings are "unacceptable as scientific evidence" purporting to demonstrate test fairness for minority groups. □

News&Notes



Restructuring of paramedical occupations can lead to greater hospital efficiency, elimination of personnel shortages, and reduction of dead-end jobs. So says a report, "Restructuring Paramedical Occupations: A Case Study," prepared for the Labor Department's Manpower Administration by two researchers at Northeastern University in Boston. The 2-year study was conducted at the Cambridge Hospital in Cambridge, Mass.

* * *

The Bluegrass Country of Kentucky, which gave us such racing immortals as Man O' War and Citation, is short of grooms, exercisers, shoers, and veterinarian aides. At the same time, many people in Eastern and Central Kentucky are unemployed. To match up the two sides, the Manpower Administration has earmarked $131,000 to train about 100 people for these jobs, in cooperation with the Thoroughbred Breeders of Kentucky, Inc. When the trainees complete 52 weeks of instruction in Lexington at the Central Kentucky Area Vocational School, they will be offered full-time jobs at the racing stables and breeding farms in the Bluegrass.

* * *

An all-time high of nearly 1,932,000 men and women received jobs or job training through Manpower Administration programs during fiscal 1972. The majority of those served in these programs were from the ranks of the unemployed and minority groups. Nearly half of the enrollees were black and another 13 percent were Spanish-surnamed.

* * *

"Lost and Found," a 27-minute documentary motion picture about five youth who found themselves through the help of skilled union instructors and the Job Corps, was awarded a gold medal first prize at the Atlanta Film Festival. The film shows how the five young men and others like them are placed in well-paying jobs after being taught trades by craftsmen from five unions: The Bricklayers, Carpenters, Operating Engineers, Painters, and Plasterers. Television star Greg Morris narrated the 16 mm. sound color movie. For information about obtaining the film, contact the Office of Program Management, Job Corps, 1111 - 18th St. NW., Washington, D.C. 20036.

More than 600 migrant farmworkers from the lower Rio Grande Valley of Texas will be trained for jobs outside the migrant stream under a $1.7 million program funded by the Manpower Administration. The participants will receive a combination of classroom and on-the-job training, work experience, and certain supportive services.

* * *

Women now comprise 20 percent of union membership but only 4.7 percent of the leadership, the Ford Foundation finds. So it has given a $42,000 contract to Cornell University to find out why the disproportion. The Foundation has awarded another $315,000 for three other studies on aspects of the changing status of women in relation to work.

* * *

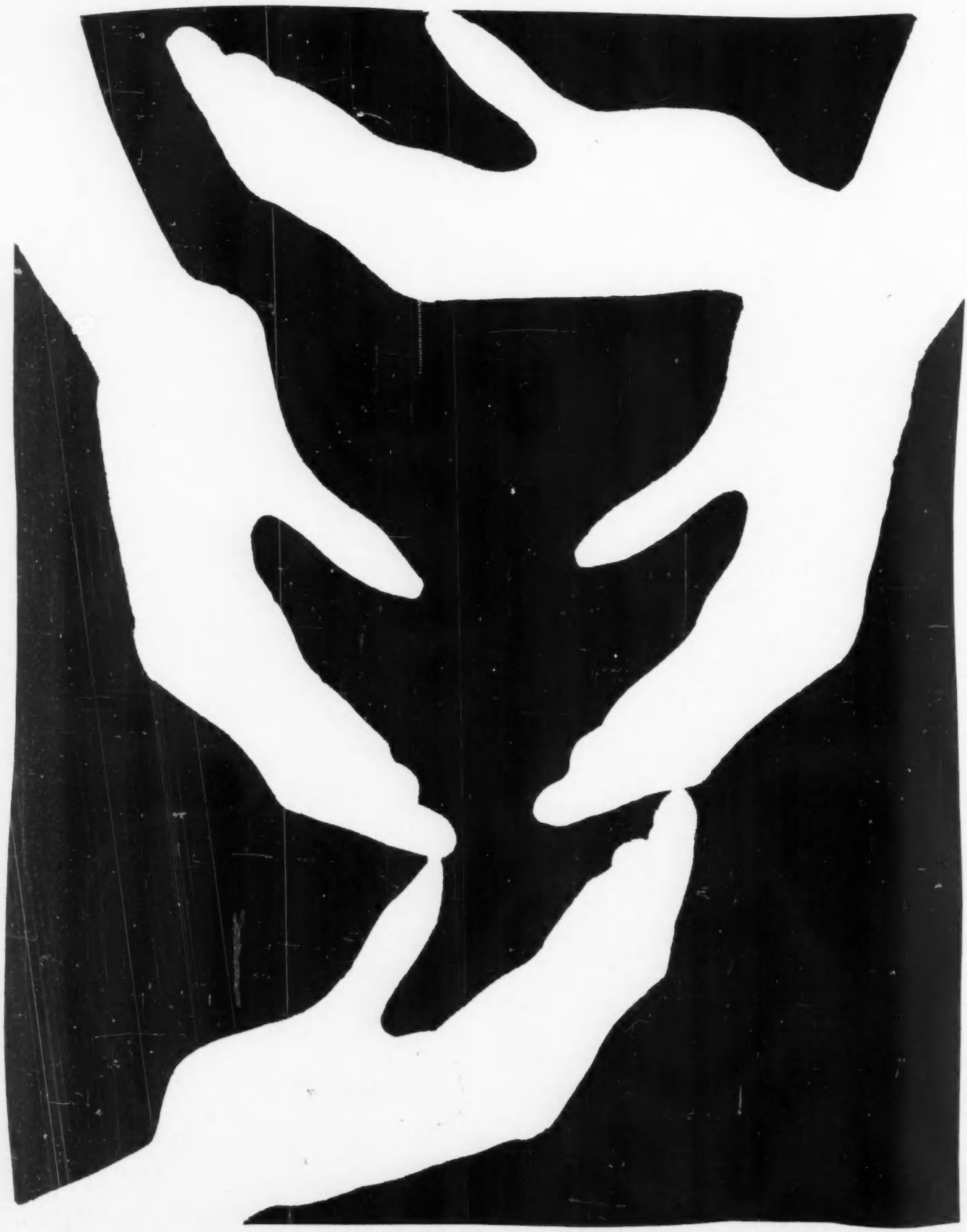
Corporations are much more generous than a year ago in paying transferred employees' moving expenses. According to a survey by a major van line, the average expense covered in a transfer has risen to $3,539 in 1972 from $2,459 a year ago. Workers now are more likely to collect for meals, motels, maid service, househunting, and appliance service. The survey found that 1 employer in 3 will take title to a home left behind by a transferred worker, and another third will cover any loss on the sale.

* * *

About 20,000 workers have received some $42 million in trade readjustment allowance payments since 1969 through the U.S. Department of Labor. This program, authorized by the Trade Expansion Act, gives special assistance to workers whose jobs are adversely affected by increased imports resulting from liberalized national trade policy.

* * *

Nearly 20,000 unemployed engineers, scientists and technicians registered with the Manpower Administration have found new jobs with Federal assistance. This was accomplished through the Technology Mobilization and Reemployment Program, a special nationwide effort announced early in 1971 to help people laid off from defense and aerospace employment.



HELPING HANDS

by Harold Bigler
and Eugene Keith

WICS Volunteers Are There When Corpswomen Need Someone to Turn to

Elsie Barrett quit school in the fifth grade, had two children out of wedlock, has been seriously ill within the past year, and was recently told that her beloved children might be put out for adoption. But Miss Barrett—now 21—hasn't given up. And she's going to make it, for two reasons.

First, she has energy and determination. Second, she has a friend—Mary Sheridan—who believes in her and who Miss Barrett knows won't let her down.

Mrs. Sheridan is a member of WICS, short for Women in Community Service. And Miss Barrett is a Job Corps graduate. They found each other last spring when Miss Barrett came to Washington, D.C., with no job and no place to stay. She knew about WICS, an organization of volunteers who aid Job Corps women, and called for help.

A member of WICS for 3 years, Mrs. Sheridan, the wife of a Government executive, is a long-time League of Women Voters member and has been doing community work of various kinds for many years. She first learned of WICS from a friend who was enthusiastic about what it was accomplishing. Mrs. Sheridan has three grown sons and a 15-year-old daughter and likes to work with people.

She found for Miss Barrett a large-hearted landlady, Dorothy Brooks, who agreed to furnish room and board for a moderate sum. But soon afterward, Mrs. Sheridan got a call from Mrs. Brooks that Miss Barrett was desperately ill. That was shortly after midnight on a Saturday. Mrs. Sheridan and her daughter hurried to the emergency room of George Washington University Hospital, and stayed until 4 a.m. when Miss Barrett's intestinal infection was brought under control.

Unable to help her find a job immediately, Mrs. Sheridan got Miss Barrett into Washington's Opportunities Industrialization Center where the keypunch operation training she first received in Job Corps was supplemented while the job-hunting continued.

Times were tough, but then Elsie Barrett was used to adversity. When she was several years younger, she had been a good student, interested in her school work. But her father's job mobility was too much for her.

"We were always moving," she said. "I'd get a little bit used to a new school, and new people, and then we'd move again. I was 16 years old, and starting the fifth grade for the third time, and I just gave up. I quit school."

Meanwhile, her father and mother had separated, and she went through a period of aimlessness and uncertainty. During that time she bore two daughters, now aged 2 and 4. She wondered what she should do. A friend told her about the Job Corps and the address of the WICS representative in Staunton, Va., where she was living at the time. That was the start of a long upward cilmb.

Accepted for training, she went first to the center at Poland Spring, Maine. She liked it, and did well. But after 6 months the center closed and she was adrift again.

After a time she went to the WICS office in Charlottesville, Va., and the volunteers got her into Job Corps training again, this time at the Charleston, W.Va., center.

"I didn't like it at all," she said. "It was tough. And strict—good God almighty, they had rules and rules and rules."

Still, she managed to stick it out for the 18 months it took her to finish training. "I guess you'd have to say it was because of my children," she explained. (Her answer is not surprising. The Atlanta Job Corps Center has found that young women with children stay longer at the center and do better than other Corpswomen.)

At the Charleston center, Miss Barrett got her high school equivalency certificate, learned office work and keypunch operation, and was given instruction in homemaking, personal grooming, and hygiene.

There can be little doubt that the confidence and sense of achievement generated at the center are responsible for her lively bearing today. She made an outstanding record at Charleston, and the center said her job potential was "excellent"—a kudo not lightly given.

Gravitating to Washington because of some relatives there at the time, she began her job search and got in touch with Mrs. Sheridan through WICS. Her two children

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Mr. Bigler and Mr. Keith are members of BK&M, a Washington-based communication and public affairs organization.

HELPING HANDS *continued*

a) *A prospective Job Corps enrollee is interviewed by Anita Juhr, WICS area director in Portland, Oreg.*

b) *Volunteers Catherine McDermott (left) and Dee Melvin leave the McKinney Job Corps Center with a group of Corpswomen on their way to a shopping trip. Conducting weekly shopping tours for McKinney Corpswomen is the main project of the Richardson, Tex., WICS.*

c) *Is the price right? Mrs. Melvin helps McKinney Corpswoman Neoille Derousselle decide.*

d) *Before deciding on a purchase, Arlene Lang of the McKinney Center solicits the advice of volunteer Rita Sawyer (left) and fellow Corpswoman Jeanette Fuller.*

e) *Ramona Romo of the McKinney Center exhibits her sewing skills for Eleanor Marvin, president of the National Council of Jewish Women, one of the six organizations that compose WICS.*

f) *Accompanied by two WICS volunteers, former Job Corpswomen go apartment hunting in San Diego. Helping Job Corps graduates find a place to live is one of the support services provided by WICS.*

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HELPING HANDS *continued*

were still in Virginia, in foster homes, and Miss Barrett was anxious to earn enough money to make a home for them in Washington. Then the latest blow fell: The edict that her children might be listed for legal adoption.

"It won't happen," says Mrs. Sheridan. "Not when they know the full story in Virginia, and I'm going to see that they do know it. Elsie has done her part and more; and she's going to make it."

Obviously, Elsie Barrett and Mary Sheridan form a "one-to-one relationship," which is what WICS strives for but can't always achieve in its service to Corpswomen. About 5,000 women serve today as WICS volunteers. They labor in a vineyard that includes, WICS says, "a half million or so girls who have been ignored or forgotten." The Nation's highest unemployment rate is among women aged 16 to 21, with nonwhites having the highest rate of all.

Since WICS first began helping Job Corps in 1965, the volunteers have recruited and screened more than 49,000 acceptable applicants, and have interviewed, referred to other manpower or education programs, or provided job referral or other assistance for 220,000 more. In so doing the volunteers have given 7.25 million hours of work, which is roughly equivalent to 3,700 women working full time for 1 year each.

Most of the 49,000 young women brought into Job Corps by WICS have received "support services" consisting of aid and counsel such as Mary Sheridan gave Elsie Barrett. Besides its volunteers, WICS has a paid staff of 38, of whom 13 are in the WICS national office in Washington.

WICS was founded in 1964 when the Councils of Catholic, Jewish, and Negro women, the United Church Women, and the Young Women's Christian Association formed a committee which met in Atlanta to protest the treatment of women and girls jailed in civil rights demonstrations. The committee sought to convince southern restaurateurs and merchants that their future business success depended on reform of unfair practices.

Two More Groups Join

The President's Task Force for the War on Poverty asked the coalition of organizations for help after Congress authorized the inclusion of women in the Job Corps. The YWCA decided to make its contribution by operating Job Corps centers; the other four groups incorporated as WICS in December 1964 to screen young women for the Job Corps. The four were later joined by the American GI Forum Auxiliary (1969) and the League of United Latin-American Citizens (1972), organizations which work with the Spanish-speaking. Together the six groups represent more than 27 million women.

By July 1965 WICS had established its first six screening centers, in Newark, Pittsburgh, Nashville, New Orleans, San Francisco, and Portland, Oreg. Today there are 220 such centers with an average of 15 volunteers in each, supplemented by other volunteers scattered throughout the country who will help when called upon. To help finance this work WICS receives about $722,000 a year under its current contract with the Manpower Administration, which operates the Job Corps.

Although its original contract called only for screening of potential recruits, WICS early undertook on its own a much broader commitment—"to do a total job of continuing community service for every girl its members urge and help to leave home and join the Job Corps."

WICS volunteers recruit through a variety of means: Churches, courts, State employment service offices, school dropout lists, any sort of program or organization that is willing to spread the word about WICS and the Job Corps. Radio, television, and newspaper advertisements also are used.

A young woman who shows up at the WICS office may not know where or how she will get any decent clothing; usually her family can't help. Even if she has clothes, she may never have owned a suitcase. She may know nothing about transportation, and never have bought an inter-city bus ticket. She may be afraid that if she goes to that frightening new place, the Job Corps center, nobody at home will write to her.

Even the Job Corps application form—reasonably simple for educated adults—is intimidating. The inclination of a girl confronted with it may well be to give up and leave, rather than sit bewildered and humiliated trying to worry her way through it.

A typical meeting between a recruit and a volunteer occurred last summer when 16-year-old Cynthia Parker of New Orleans met white-haired Beatrice McConnell at the Washington, D.C., WICS office. Cynthia, one of 11 children, had come to Washington for an indefinite stay with an older sister and had suffered and survived a bout of homesickness. Her sister, a Capitol Hill secretary, suggested the Job Corps, and that brought Cynthia to WICS.

At the interview, Cynthia didn't have to fill out the long form by herself; Mrs. McConnell did most of it during the course of a relaxed conversation. There were questions about police records (none), schooling (she had quit after repeating the seventh grade), and health (no problems). A vocabulary test was administered; Cynthia got 35 right out of 50. A passing grade is 26, and Mrs. McConnell

told her that her performance was "pretty good."

A parental consent form was sent to New Orleans. Mrs. McConnell told her, "When everything's back here, we'll call you." And WICS had some suitcases if Cynthia needed one, as well as some clothes if she was short of them. She was told about the clothing allowance at the center.

They talked about possible visits home from the Job Corps center. Mrs. McConnell assured Cynthia there was a good possibility of a Christmas holiday at home if her record was good.

"If problems turn up, don't just worry about them; talk them over with your counselor at the center," Mrs. McConnell said. "You'll meet all sorts of people. You won't like some of them, but you'll make your own friends. There's plenty of work, but there's also recreation, television, parties, dances."

Students Move at Own Speed

Before she left, Cynthia reported that despite her previous difficulties in school, she didn't feel frightened at the prospect of academic work at the Job Corps center. Mrs. McConnell had explained to her that every student is allowed to progress at her own speed.

Besides preparing young women for their Job Corps experience, and making sure they are eligible, WICS volunteers keep in touch with them while they are at the centers (from 6 months to 2 years), visit them if geography permits, and work with them when they return. They encourage and help them in job-hunting, in finding suitable housing, and in solving financial, legal, transportation, and other problems.

"Working with the young women whom society has neglected can be a very frustrating experience," WICS staff member Helen B. Brewer noted in a report written from questionnaire[s] completed by a cross-section of WICS volunteers. The typical volunteer, the report said, may "find it difficult not to register shock or surprise or censorship of their (the recruits') values; disgust over their language; impatience with their attitudes, or lack of motivation, or failure to keep appointments or to give correct information, like home address."

Elizabeth Tout, a volunteer in Fort Worth, Tex., attests to the validity of the report. She says she had to change a lot of her thinking after she began screening potential Corpswomen. "For instance, I learned that they resented me, sitting across that desk from them with my watch, my jewelry, my fine clothes. I began 'dressing down' somewhat, and I left my jewelry at home."

The Brewer report also said: "We WICS workers experience fear; fear of the ghetto; fear of going into strange homes; fear of dogs guarding shacks we visit along lonely dirt roads in the country; fear of working in a WICS office in a ghetto area. To overcome this fear some of us turn to prayer; some of us do a 'dry run' to unfamiliar places; some go in teams when visiting homes. I keep reminding myself that it is the unfamiliar that is frightening and if the people who live in the area have to accept it, then I can, too."

"I've made a lot of those trips, sometimes alone," Mrs. Tout says. "I remember once I didn't have a car available, and I took a total of four buses to a pretty tough neighborhood. A group of youths shouted at me; one said, 'What you doing over here, whitey?' I was nervous and upset, but I told myself not to say anything back to them; if they're going to hurt me, they just will. But nothing happened. Nothing has ever happened."

In different ways and with different examples, almost any WICS volunteer will tell you that one success is worth all the frustration and fear and failure. They take joy in reporting such stories as these:

• A Spanish-speaking girl from Texas who was trying to support the family; her mother was dying of cancer. She was doing well at St. Petersburg, Fla. Job Corps center but it was closed. She finished at the Cleveland center, got a job as a clerk at an aircraft company, went to beauticians' school, and is now an area-wide supervisor for a cosmetics company. While she was building her own career she paid for the schooling of two younger children in the family.

• The polio victim who walked with braces into a California WICS office and said she wanted very much to go to school with girls her own age. She had spent most of her life in a wheel chair, and had been taught at home. Architectural barriers, such as stairs and long distances between buildings, made many Job Corps centers unsuitable for her. Then a volunteer got information on the McKinney center (near Dallas), where all the buildings are one-story. The young woman went there, became an honor student and an officer of the student council, and now is a keypunch operator for IBM.

• Pamela Keohohou, of Honolulu, a high school graduate who was working as a janitor. She came to the WICS office and was sent to the Job Corps. Immediately upon graduation she won a 4-year college scholarship.

• Josie Salinas, of Oxnard, Calif., who after high school felt compelled to help defray her family's expenses. She "got tired of hamburger jobs," and went to WICS and the Job Corps. "Man, when I got on that bus I was scared," she said. "But I'd been through hell and down just about any dirty road. . . . Lots of people gripe about spending money for the Job Corps, but I'll tell you this: If I hadn't gone into the Corps, you would have seen me in jail, out in the streets, or on welfare." She's now earning her own way and "heading for college."

Many Don't Make It

There are, of course, many failures, for a variety of reasons. Mrs. Tout tells of a Spanish-speaking young woman who was highly motivated and doing well in the Job Corps but whose mother asked her incessantly to come home. Finally she yielded. She got into a wrong crowd; she and a boy friend held up a grocery store, and she wound up in reform school. Mrs. Tout goes with the juvenile officer to visit the reform school, but for that young woman the chance and promise of Job Corps are gone.

Once a young woman has started in the Job Corps, WICS workers do everything they can to keep her there. An Atlanta volunteer, for example, visited the mother

HELPING HANDS *continued*

of a Corpswoman who had written that she was sick and her daughter would have to come home to care for her. The volunteer found that the mother had gone fishing, and that another daughter who was living at home was capable of caring for the mother if the need arose. Later the volunteer persuaded the mother that her daughter in the Job Corps could do more for her if she finished her training and got a decent job.

Often, a great deal more must be done. One young woman entered the Job Corps shortly after being released from a hospital where she had spent months recovering from more than two dozen stab wounds inflicted by an intruder. She found it impossible to concentrate on her Job Corps work, however, largely because she was concerned about her sister at home who had become a drug addict.

Psychiatric counseling followed, along with extensive help and support from WICS. The volunteers then got her back in the Job Corps and she was enthusiastic about her progress—until she developed a severe infection requiring major surgery.

A WICS volunteer who is a nurse took the young woman into her home for many weeks until the infection had cleared up sufficiently to prepare her for surgery. Welfare and public hospital services were arranged. The surgery was successful, and the girl now is back in Job Corps, determined to make a go of it.

Despite the best efforts of WICS volunteers, dropouts remain a substantial problem. Many young women decide after days, or even hours, that the Job Corps isn't for them. When they leave, WICS tries to help them, with a job or perhaps by placing them in another training program. Job placement, for graduates as well as dropouts, is one of the most difficult and challenging tasks for WICS.

The shortage of volunteers is another problem ruefully referred to from time to time in reports from most WICS offices. But what they lack in numbers, WICS volunteers make up in time, effort, and devotion.

Mrs. Tout spends 50 or more hours a week in the Fort Worth office. She often finds herself helping the parents of Corpswomen get more training and better jobs because "they worry that their children are getting ahead of them." She has been to many a Corpswoman's wedding and has served as matron of honor; she recalls that she spent a Christmas Day with one of her girls who was having a baby.

Two-Week Stay Prolonged

Hazel Hughes, a Boston widow, invited three young women needing housing to move into her home. It was supposed to be for a couple of weeks; it turned out to be 2 years. But she doesn't regret it. The girls, two black and one white, "keep in touch, all the time," she said. "Good news, bad news, whatever. I know I'm the mother image. If the boy friend of one of them gives her trouble, she comes to see Hazel."

WICS volunteers help calm the fears of frightened girls who have never been in a doctor's office, never stood in a cafeteria line, and in some cases never slept in a bed. They write letters to the young women at the centers; they set up "halfway houses" for use by new graduates, and they call on their own husbands to help find jobs.

The Kansas City WICS office has established a scholarship program for Corpswomen who want further education. The volunteers gather information on available scholarships and raise additional funds on their own, with help from the WICS parent organizations. Five young women now are receiving about $3,500 a year in scholarship help as a result of the Kansas City office's efforts.

What prompts women to seek out the demanding kind of volunteer work required in WICS, and what satisfaction do they get from it? The reasons are many and varied, and often difficult to express with precision. Mrs. Sheridan says of Elsie Barrett, and the six other Washington-area girls she's helping currently: "It's like having daughters who are not living at home, but who have problems that need solutions. Working with them gives me more confidence in raising my own daughter."

Mrs. Hughes, in Boston, was invited into WICS 5 years ago, agreed to "try it a while," and after short exposure found herself reflecting, "There but for the grace of God goes my daughter." A frequent volunteer, she sees in WICS "such a need for understanding."

Fort Worth's Mrs. Tout somewhat hesitantly recalled a personal experience. Fifteen years ago she had cancer, and was told she had 6 months to live. She and her friends prayed, and she vowed that if she lived, "I would give myself to those who need me." She has done that, most especially in WICS. "I love it all," she says. "It has made me a better mother. I'm a volunteer who is paid, but not in money."

Mary Hallaren, the national executive director of WICS, believes the volunteers benefit as much as the young women they help. "The volunteers get experience and insight that they really need," she said. "The middle class must become involved. If we don't lick poverty, it'll lick us."

Miss Hallaren, a former head of the Women's Army Corps, was "thoroughly enjoying retirement" when WICS approached her 8 years ago. The work has fascinated her, just as it has the volunteers.

Now 65, she recognizes that she won't continue as executive director forever. What will she do when she steps down?

"I'll become a WICS volunteer. There's so much to be done." □

Words & Figures

Manpower Program Job Placements

Some 336,800 persons were placed in jobs after terminating during fiscal year 1972 from nine Manpower Administration programs aimed primarily at training and job creation.

This figure represents 44 percent of the slightly more than 750,000 persons who terminated last year from:

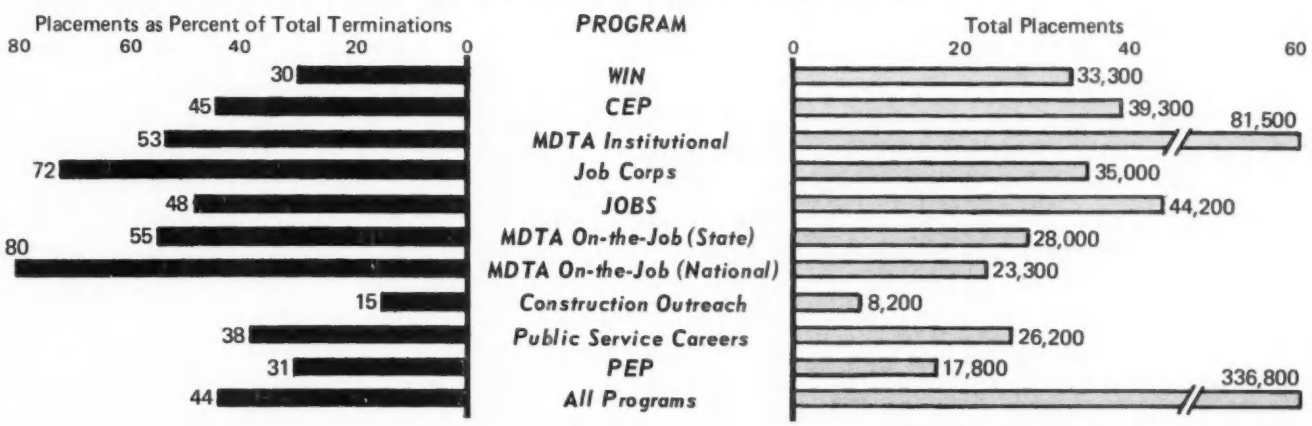
- The Work Incentive (WIN) Program, which moves people off welfare into permanent jobs.
- The Concentrated Employment Program (CEP), which draws together under one sponsor a variety of services to help poor people in a designated target area.
- Manpower Development and Training Act (MDTA) institutional training, which provides classroom instruction for the unemployed and underemployed.
- MDTA on-the-job training (OJT), under which participants are first hired and then trained. Some on-the-job training projects are national in scope, and the rest are State-administered.
- The Job Opportunities in the Business Sector (JOBS) Program, under which the disadvantaged are placed in private industry and trained while on the payroll, with the Government reimbursing the employer for above-normal costs involved in training and supplying supportive services to the hard-to-employ.
- Job Corps, a training, education, and rehabilitation program for disadvantaged youth.
- Public Services Careers (PSC), which seeks to bring the disadvantaged into jobs with public agencies and to upgrade low-paid workers already on public payrolls.
- Construction Outreach, which moves people into jobs or training in the building trades, either at the apprentice or journeyman level.
- The Public Employment Program (PEP), which puts the unemployed and underemployed to work in transitional jobs in State and local public agencies.

(Not included in the figures are the Neighborhood Youth Corps and Operation Mainstream, work experience programs whose primary objective is not an immediate placement in permanent employment and for which the concept of completion is not applicable.)

Of the 56 percent who terminated from the nine programs without finding jobs, most dropped out before completing their training. Less than 10 percent of those who completed the programs could not find jobs. This high placement rate reflects the on-the-job training nature of most of the programs. In such programs trainees are already in an employment relationship and, upon completion of the training, continue in the employ of the training establishment.

Placements as a percentage of total terminations ranged from a high of 80 percent for national MDTA on-the-job training programs to a low of 15 percent for Construction Outreach. The Construction Outreach figure reflects the high dropout rate common to apprenticeship programs generally. MDTA classroom training produced the highest number of placements, 81,500, or 53 percent of the program's total terminations.

Placements From Training and Job Creation Programs--Fiscal Year 1972



The Emergency Employment Act: An Assessment

by Sar A. Levitan

The Emergency Employment Act (EEA) is an important addition to the rapidly expanding social legislation of the past decade. As committed conservatives and fickle liberals join in concerted attacks on government efforts to help the unemployed and disadvantaged, the EEA is a case study in efficient government activity. It illustrates the ability of the Federal Government to commit massive resources for needed social goals.

The rapid implementation of the EEA belies the conventional wisdom about the slow pace of governmental activity. Not only was the Congress involved, but cooperation was required among all three levels of government—Federal, State, and local—and numerous nongovernmental agencies and organizations. Though there were notable exceptions, State and local governments mobilized quickly to implement the act.

Dr. Levitan is director of the George Washington University Center for Manpower Studies. This article is part of an ongoing evaluation of manpower programs funded by a grant from the Ford Foundation.

Cynics may suggest that there are always enough recipients for handouts and that Federal officials hardly deserve credit for giving away a billion dollars. But recent history is filled with instances where Federal funds were not allocated or were improperly diverted. It is not always easy to give away money for useful social purposes.

In contrast, the facts about the EEA are refreshing. Congress passed the enabling legislation in July 1971 and within 4 weeks had appropriated the necessary funds. Federal officials had checks ready for State and local governments to start hiring within a matter of days, and unemployed workers were on the payroll within a month after the appropriation was made. Within 6 months, all funds were committed, and more than 140,000 workers were on the payrolls of State and local governments.

Consider the obstacles that could have hampered effective implementation of the EEA. Even after Congress had appropriated the funds, Federal officials could have taken months to issue guidelines as has happened on other occasions. The

EEA guidelines were issued within 3 days after the funds became available.

Even when funds were allocated, State and local bureaucracies might have caused interminable delays in the processing of applications. A few States and localities did, but these were the exceptions. Spurred by high unemployment and the eagerness of the unemployed to find jobs, "normal" hiring procedures were bent to fill EEA-funded jobs. According to a General Accounting Office study, some communities had 16 applicants for each vacancy.

There was also concern that special interest groups slighted by the allocation of jobs would block implementation. The potential damage that this could have done was illustrated in the few cases where unions or other groups secured injunctions that prevented State and local authorities from filling EEA slots. And hassles among conflicting interests also delayed action in a number of instances.

But such roadblocks were rare, and the unemployed were hired to perform needed public functions. Where delays did occur, Federal officials exercised sufficient prodding to stimulate necessary action. The Federal presence was evident at every step—from allocating of funds to ascertaining that Federal objectives were being followed in the hiring of unemployed workers.

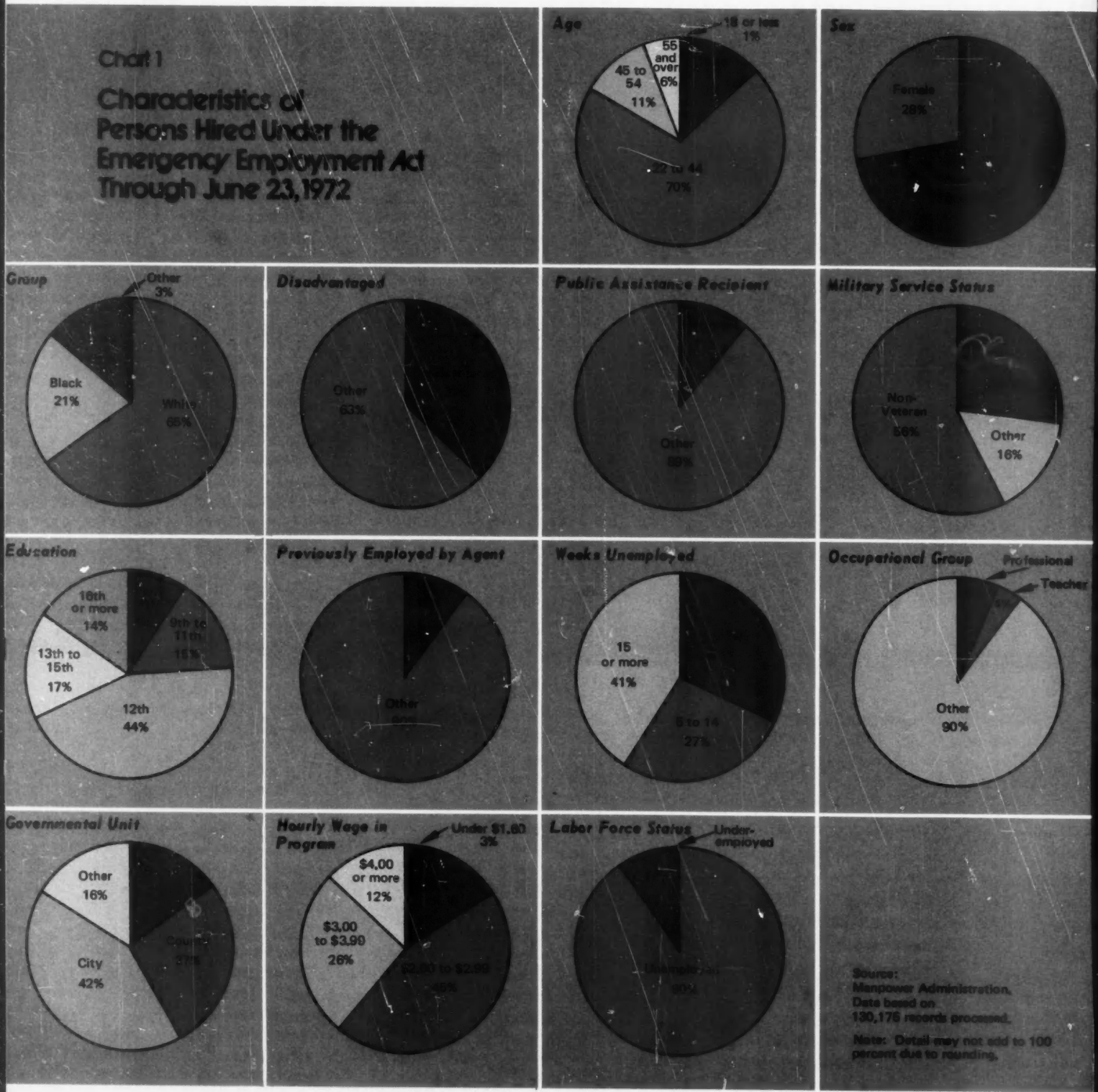
Federal guidelines and monitoring did not, however, force State and local officials to act in unison or mold their programs into a single pattern. Case studies of EEA operation made by the National Manpower Policy Task Force showed great diversity and considerable initiative by State and local officials in implementing the legislation within Federal guidelines. Some communities with high unemployment among the unskilled and the disadvantaged used EEA funds to expand entry jobs requiring little education or training, while other communities placed top priority on pressing public needs and hired unemployed skilled and professional workers.

No claim is made that the EEA is a model piece of legislation. On the contrary, efficient administration was achieved

'The EEA is not antipoverty legislation but rather an effort to create jobs for those

Chart 1

Characteristics of Persons Hired Under the Emergency Employment Act Through June 23, 1972



who are forced into idleness during a period of high unemployment.'

despite certain mandates in the legislation that were virtually impossible to meet. The estimated 175,000 jobs (140,000 during the first year and an additional 35,000 during the second year) that the legislation would generate could provide employment for only a small proportion of the millions throughout the Nation who were seeking work. Nonetheless, the law called for hiring preference for Vietnam veterans, former participants of manpower programs, young persons entering the labor force, older workers, migrant workers, persons whose native tongue is not English, welfare recipients, and workers displaced by technological change. Obviously, there was not enough money to hire all those who were assigned priority.

Program Agents Determined Priorities

Each of the 650 program agents—namely, State, county, city, and Indian reservation officials—had to determine what priorities suited each jurisdiction best, but at the same time could not ignore other legitimate applicants for jobs. As of mid-1972, all the preferred groups were represented among the 145,000 persons on the EEA rolls (see chart 1). Inevitably, any group could claim to be represented inadequately. But given the vague criteria spelled out in the legislation, any distribution of the limited number of jobs necessarily would be arbitrary and could not satisfy all claimants.

A billion dollars may be a lot of money, but it was far from enough to establish a tight labor market in an economy where 5 million workers were idle. State and local officials acted as employers naturally do and tried to get the most promising applicants from among those they were legally required to favor. Two of every three persons hired were unemployed less than 15 weeks. Some argued that the legislation should have favored the approximately 1.2 million long-term unemployed, who constituted about a quarter of all the unemployed in the country during the first year of EEA. But hiring only the long-term unemployed would have greatly circumscribed the eligible population and might even have been contrary to the law.

Another issue centered on the proportion of disadvantaged persons hired. Federal guidelines define as disadvantaged any jobseeker who is poor and is either a member of a minority group, below 22 years or above 44 years of age, or has less than a high school education. According to official statistics, 37 percent of all hired by mid-1972 were in this category. But the National Manpower Policy Task Force case studies, as well as General Accounting Office investigations, indicate that some program agents applied the disadvantaged definition loosely in order to meet Federal criteria.

Other characteristics of EEA hires also suggest that data about the number of disadvantaged persons employed may not have been precise. More than three-quarters of all hires had at least a high school education. While even people with a high school diploma may be poor, it is doubtful that a substantial number of people in this group would meet the disadvantaged criteria. Very few persons hired with EEA funds had earned less than $1.60 an hour on their previous job though there were 3 million people in the United States in this category.

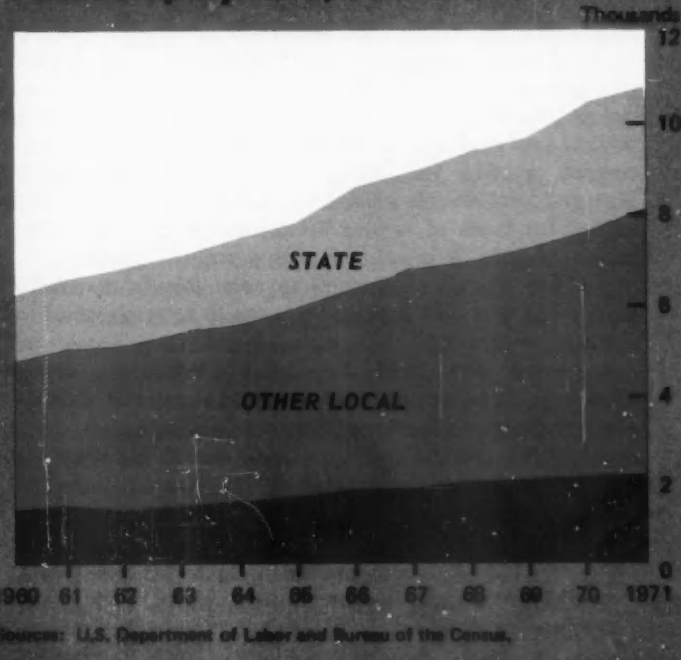
There is no need to belabor the point. The EEA is not anti-poverty legislation but rather an effort to create jobs for those who are forced into idleness during a period of high unemployment. A more crucial question, therefore, may be the number of jobs the EEA actually created. On this most significant issue, official statistics are of even less help. We know the number of people that program agents placed on EEA payrolls, but this does not mean that all these jobs would have gone unfilled in the absence of EEA.

Despite alleged manpower shortages in local and State governments, their payrolls have been rising year after year, during good times and bad. In the decade preceding passage of EEA, State and local government employment rose by about two-thirds and continued to rise during the recent recession when private employment remained stagnant and even declined for a while (see chart 2).

It may therefore be surmised that some growth of State and local employment would have continued after August 1971 when EEA funds became available. The aggregate growth in State and local employment does not mean, however, that expansion was shared by all State and local governments.

Chart 2

Public Employment, 1960 to 1971



Sources: U.S. Department of Labor and Bureau of the Census.

'... it would be difficult to fault either Congress or Federal administrators for

Indeed, during the year preceding the passage of EEA, city employment in urban areas with a population of 300,000 and more actually declined and these areas received a relatively large share of EEA funds.

Based on aggregate changes in State and local employment since EEA hiring began in September 1971, estimates of the number of jobs created by the program clearly are unreliable. But data on employment in individual areas are not available. Given these caveats, data on total State and local employment suggest that EEA did expand public employment, but it is impossible to say precisely how much. (One method of calculation indicates that EEA generated at least 83,000 jobs.) Whatever the actual number may have been, it may be safely assumed that some State and local governments would have expanded in the absence of EEA and that some of the planned expansion was charged to EEA payrolls.

This displacement effect of EEA is likely to be accelerated in the future. By the time EEA was enacted, most State and local governments had already planned their budgets for fiscal 1972 and the funds for any planned growth already had been appropriated. This situation will not prevail during the second year of EEA, when State and local planners may count on not only the continuation of the preceding year's EEA funds but also some sweeteners due to the anticipated 25 percent boost in the EEA budget during fiscal 1973. Thus, EEA is likely to become a revenue sharing device rather than a means to generate new jobs for unemployed workers.

Strong Case Exists for Training

Closely related to the number of jobs generated by EEA is the issue of their permanency. The record of program agents is not promising. By mid 1972, 57,000 of the original people hired under EEA had terminated their employment, but only 12,000 had been placed in permanent jobs, including probably no more than 7,000 on regular State and local government payrolls. These data create serious doubt whether State and local officials will live up to their promise when they applied for funds of moving 50 percent of EEA hires into permanent jobs. Whether this was a realistic goal is open to question, but it is becoming apparent that for too many EEA participants the program is going to remain, indeed, a transitory experience.

Apparently little is being done to help EEA hires to qualify for permanent jobs. If the statistic that 37 percent of the hires were disadvantaged is correct, then a strong case can be made for providing training and other supportive services to help them secure permanent jobs. Goaded by Congress, however, Federal officials decided to maximize hiring with EEA funds and left little for training or other "frills." As of June 1972, Labor Department officials estimated that fully 96 percent of Federal funds were allocated for the payment of wages and fringe benefits, leaving less than 4 percent for training, supportive services, and administration. This is a Spartan budget, although it would be difficult to fault either Congress or Federal administrators for placing top priority on funds for much needed jobs.

It might have been hoped that the limitation on training funds would encourage EEA officials to assist their hires through other manpower training programs. There is little evidence, however, that this has been the case. Only a few local officials have taken the initiative to use manpower training or other supportive services to help EEA participants. The evidence indicates that the majority of EEA hires qualified for their jobs and might have had no difficulty in performing effectively, but those who needed help rarely got it and were left to sink or swim on their own.

In summary, it might be stated that the first year of EEA was marked by vigorous initial action to achieve the primary function of the legislation, namely, to place the unemployed in jobs. This is no mean achievement. But preoccupation with the primary goal precluded progress on the secondary goals of helping place those hired in permanent jobs through training them and by reforming the civil service system.

As for the future, little change in the operation of the program is likely although a number of questions and possibly troublesome issues are discernible. Federal officials obviously are concerned about the substitution effect in communities where EEA funds may be used for payment of salaries to employees who have been or would have been hired in the absence of EEA. But designing criteria to guarantee maintenance of effort by program agents and to assure that the EEA funds are used only for additional hiring is a formidable challenge. Federal officials are hardly in a position to require States and communities to spend predetermined amounts on their employees' salaries, and aside from its questionable legality such an effort would be difficult to police.

One significant change did occur before the end of the first year of EEA. The guidelines were revised to require that Vietnam veterans constitute 40 percent of EEA hires rather than 1 of every 3, even though veterans' unemployment is dropping, employment conditions generally are improving, and the number of discharged servicemen is declining. One can hardly fault the effort to help veterans. But if unemployment is high, singling out one group above all others is at best arbitrary. It might be more appropriate to concentrate on hiring disadvantaged ex-servicemen, of whom there are many, and leave the more fortunate ones to shift for themselves, anticipating that with the help of veterans' readjustment allowances and an expanding economy they will be able to adjust.

Perhaps it would be more equitable to allocate a higher proportion of jobs to all the disadvantaged and not just to veterans. The experience during the latter half of the 1960's showed that special provisions must be made to place the disadvantaged even during periods of high employment.

An alternative to allocating a specific proportion of jobs to selected target groups would be to provide a sliding scale of Federal subsidies. Instead of paying 90 percent of wage and

placing top priority on funds for much needed jobs.'

fringe benefits, the subsidy could cover all or part of the salaries. This concept is already in the law, which prohibits the use of EEA funds on annual salaries exceeding $12,000, and might be expanded to include other groups. For example, if it is determined that top priority should be given to place welfare recipients in regular paying jobs, 100 percent of their salaries could be paid while the Federal contribution could be 75 percent of the salaries of other disadvantaged persons, and 50 percent of the remaining hires.

Such arrangements obviously would create a considerable administrative burden, but this is not necessarily insurmountable. A sliding scale of Federal subsidies also would put teeth into Federal priorities, but with a minimum encroachment on the freedom of communities to choose the types of jobs they fill with EEA funds. Presumably Federal carrots can be made attractive enough to ensure that Federal priorities are carried out.

Other schemes might be tried, too, to achieve the secondary goals of EEA. But additional regulations would only complicate the administration of the program and change it to another categorical program with Federal officials playing an ever more predominant role and robbing local officials of their freedom to administer EEA programs in their communities.

Fund Substitution Not Critical

It would be a mistake to burden EEA with solving too many problems. One year's experience suggests that it is a very effective, if limited, tool in countering downturns in the economy. The best way to reduce excessive unemployment is to create jobs and the EEA experience has shown that the Government can do that rapidly, conventional wisdom notwithstanding.

Simulations by the Federal Reserve Board using complex statistical models suggest that a $1 billion expenditure on an EEA-type program will reduce unemployment in the first year by twice as much as an equal increase in Federal grants-in-aid expenditures (grants-in-aid are given for a variety of purposes, including vocational education, research, public works projects) and will have many times the impact of a cut in personal income tax rates. Moreover, jobs can be targeted for those among the unemployed—be they veterans or the disadvantaged or engineers—who are assigned the highest priority.

In providing that EEA establish only transitory jobs, Congress may have acted wisely, though for the wrong reasons. As noted earlier, the longer EEA lasts, the greater are the chances that States and localities will use EEA funds to substitute for their regular outlays without creating additional jobs. While there may be ample justification for assisting States and localities in meeting public needs, the goal of EEA is not only to alleviate the financial burdens of State and local governments but to create additional jobs.

The problem of States and localities substituting Federal funds for their own budget outlays is not critical under countercyclical legislation lasting for only a short period, because the troughs of post-World War II recessions have lasted for less than a year. Substitution is, in fact, a way to phase out the economic impact during an upswing without laying off those hired. What is critical is that the program be capable of tooling up quickly for a timely response during periods of rising unemployment.

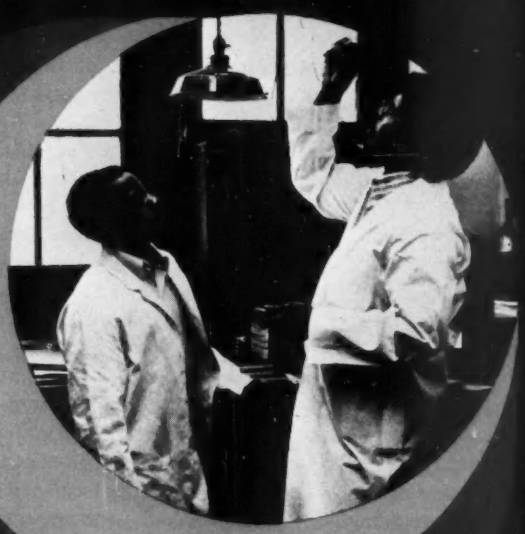
To this end, the trigger mechanism introduced in EEA should have been used to turn on increased expenditures during the period of rising unemployment. One reasonable formula would have been to provide jobs to absorb a stated proportion of the unemployed above a given level. If an interim goal of 4 percent unemployment were specified, one-fourth of the unemployed above this level could be absorbed by a public employment program. At 6 percent unemployment, or "excess" unemployment of 1.7 million, this would mean the hiring of roughly 425,000 persons, triple the present levels. The annual price tag would be roughly $3.4 billion at $8,000 per job.

If such legislation had been on the books at the outset of the 1970 economic downturn, it is likely that more than 400,000 persons could have been on the job before EEA was even passed. Since unemployment is unlikely to dip below 5 percent in the coming year, enrollment under the proposed trigger mechanism would still have provided jobs to some 300,000 unemployed even if the recovery continued. This might be considered as a feasible target for the program even if optimistic hopes about recovery materialize. The program could be phased out when unemployment declines again to 4.5 percent.

If judged primarily as a countercyclical program providing manpower to fill local public service needs during a short period of high unemployment, EEA's modest performance in achieving other goals is acceptable. But in the long-run the public employment strategy must be judged by how well it serves specified target groups, deals with depressed area problems, provides transition into permanent jobs, restructures jobs, effects civil service reforms, and ties in with other manpower efforts.

These diverse aims cannot be achieved with the current resources allocated to the program. One approach would be to concentrate EEA funds in low-paying jobs offering entry opportunities to disadvantaged persons which would still constitute an advancement to the poor and the unskilled. But to offer them opportunities for upward mobility, it would be necessary to provide larger doses of training and other supportive services. This would require greater coordination of EEA with other manpower programs than has occurred to date.

Limiting EEA only to the disadvantaged assumes, however, that jobs would be available to the rest of the population. Unless the necessary fiscal and monetary steps are taken to generate an adequate number of jobs for all those who can freely compete in the labor market, we will need an expanded EEA not only for disadvantaged persons but for millions of others who are forced into idleness. □



Spurring Minority Interest In Science

by Jeffrey B. Garberson

Summer Institutes Seek to Expand Horizons of Teachers And Their Students

A relative lack of minority participation in the sciences has been recognized for some years as a significant national problem. Attempts to cope with it have varied; many aim directly at the potential participant himself through some form of on-the-job training or through aggressive recruiting in minority schools.

At the Lawrence Livermore Laboratory, operated for the Atomic Energy Commission by the University of California, a more indirect approach, supplementing several conventional programs to draw minorities into the sciences, has met with considerable early success. This is the 8-week Summer Research Institute Program, which each summer since 1970 has exposed a new group of teachers from predominantly minority schools—mostly colleges—to the latest in research techniques and equipment. A total of 46 college instructors and eight high school teachers have participated in biomedical, physics, and computer institutes the past three summers.

The intent is twofold: To communicate to the minority student, through his teacher, the excitement and relevance of science and research today; and to provide the instructor with a vehicle to expand his own horizons, which are often limited by budget.

The teachers have come from schools across the country, their roundtrip transportation and approximate normal academic salaries paid by the laboratory.

Their reactions, after three summers, have been uniformly favorable. Some teachers report that they have become more confident and knowledgeable classroom instructors. Others report that they have been stimulated to pursue research along with teaching. At least one has had his research findings published.

The institutes were the brainchild of Dr. Bernard W. Shore, head of the laboratory's biomedical division. With Dr. Thomas E. Smith, an enzymologist, he worked up the first proposals for an institute to be sponsored by the biomedical division. Laboratory authorities approved the plan, and by November 1969 the first recruiting letters for the biomedical institute were in the mail to some 100 predominantly minority colleges across the country.

Selection was made largely on the basis of mutual benefit. How did the candidate's interest and background fit in with laboratory projects? What would he, his students, and his school gain from the summer's experience? There was no degree requirement for participants, and because the focus of the program was on the teacher's students as much as on the teacher, the candidates themselves did not have to be minorities. Twelve of 13 that year turned out to be minorities.

The first summer, 1970, established the basic format of the program, and few changes were needed in 1971 and 1972 when lab physics and computer institutes were added. The first year's participants represented 13 schools in 12 States, coming from as far away as Alabama and from as near as Arizona. The laboratory helped arrange housing for participants and their families and scheduled after-hours social gatherings to make them feel at home.

The cost per teacher for the 8-week institute in 1970 was slightly over $3,000, including travel and salary. This figure has remained about the same in succeeding summers, and the program's total cost over 3 years has been about $160,000. The funds are made available by the laboratory from the annual operating budget provided by the Atomic Energy Commission.

The participants quickly demonstrated their qualifications. "By and large, these people are as capable as the people at Harvard or Cal," Dr. Shore commented the first summer. "They lack only one thing—the funds to support today's sophisticated research programs and equipment."

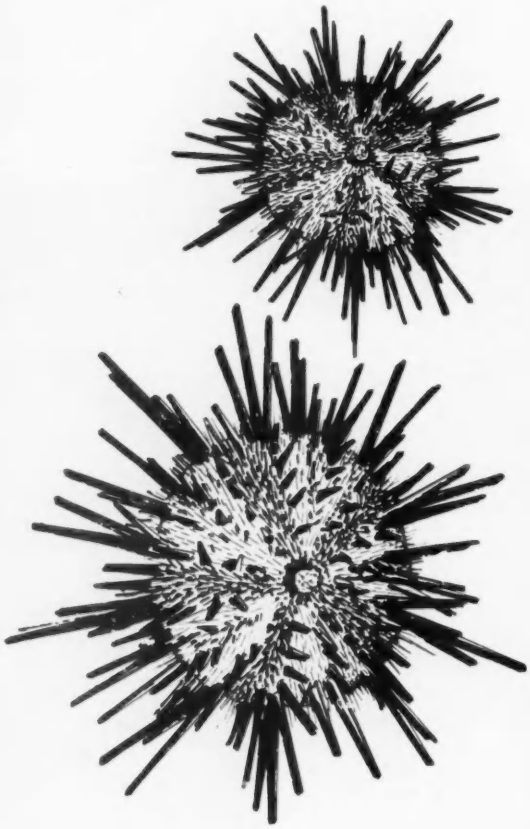
Participants Do Research

Teachers attending the first institute worked with laboratory staff scientists on research projects that delved into specialized topics in radiobiology, biochemistry, and biophysics. They heard daily scientific lectures and, at least once during the summer, each made a formal presentation of his own work to some of the laboratory biomedical staff in a manner resembling a scientific symposium.

The staff familiarized them as thoroughly as possible with the multitude of research techniques and instruments that could be of immediate or eventual use in their work. In addition, they toured other research facilities at the multidisciplinary, 5,000-plus-employee laboratory—such as the large thermonuclear fusion project.

"While an 8-week institute is necessarily limited in scope, we felt that our first program was sucessful in exposing visiting faculty both deeply and broadly to some of the most modern biomedical research going on in the country today," Dr. Shore

Mr. Garberson is a public information officer for Lawrence Livermore Laboratory.



recalls. "This exposure, we were confident, would be of great value when they returned to their home schools."

There was another potential benefit that motivated early planning. Dr. Smith, who as an undergraduate studied at a small black school with "limited equipment and minimal research funds," points out that without outside financial aid and with heavy teaching loads, it may be virtually impossible for small-school faculty to remain competitive as researchers in rapidly advancing fields of science. "Some excellently academically qualified researchers have been unable to gain support from major granting agencies, for this reason," he says.

Publication Called Vital

"In part, our institute was designed to reduce this problem, to get these teachers involved in laboratory projects leading to publication of results. Publication is a vital step for any scientist hoping to establish a record that will make him self-sufficient in competing for grants."

As a staff scientist and participant supervisor, Dr. Smith also notes that "these teachers help us accomplish tasks that we haven't the manpower or womanpower to complete because of our own ceiling on department personnel. It is a two-way street."

All participants engage in research while at Livermore. Among the most fruitful projects have been biomedical studies of sea urchins, small animals whose biological makeup is useful for examining reproductive and cell division processes which shed light on analogous processes in higher animals, including man. Dr. Hector Timourian, laboratory staff scientist, has conducted such studies for several years. Under his supervision, one institute participant, Dr. Charles Hubert of Clark College in Atlanta worked on a project in the 1970 biomedical institute to determine the fertility of sea urchin eggs. His findings were published in the JOURNAL OF REPRODUCTION AND FERTILITY.

The following year, Drs. Arthur Bacon of Talledega College in Alabama and Wilma Segars of Norfolk State College in Virginia established, among their other projects, techniques for growing the cells of sea urchin embryos in isolated cultures. Their methods were more successful than any that had yet been developed at Livermore and are still in use. And this past summer, Dr. Hubert—at Livermore for the second time—improved existing techniques for isolating the apparatus that controls mitosis (cell division). His methods have facilitated studies of how this apparatus controls the cellular distribution of calcium, which is thought to play a major role in mitosis.

It is typical of scientific research that such contributions cannot be labeled as breakthroughs. Progress is more a matter of fitting small pieces into a large puzzle. But the work begun at summer institutes goes on at Livermore and at the schools to which participants have returned.

Norfolk State College recently purchased a facility for synthesizing sea water, facilitating Professor Segars' studies of sea urchin cell development, and hopes to get more equipment.

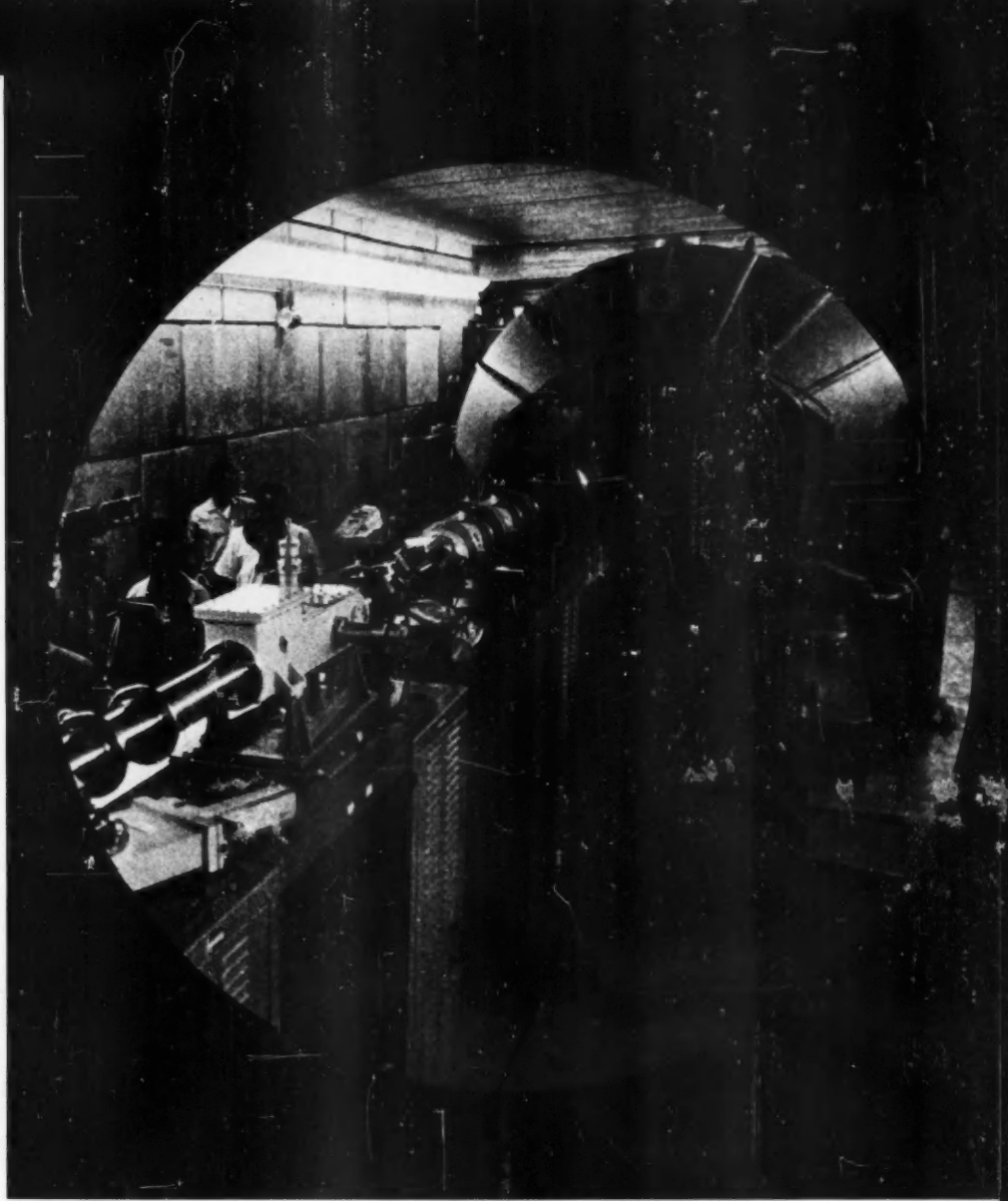
At Talledega College Dr. Bacon is exploring the effects on sea urchins of drugs such as hexachlorophene that have been blacklisted by the Federal Food and Drug Administration for potential adverse effects on humans. This is connected with work done by Dr. Timourian on the effects of metals such as lead on sea urchin cells.

'Got Me Out of My Rut'

Attending the institute "tantalized me," Dr. Bacon said. "There are all of these beautiful things you can't do because of time and budget restrictions." But like other scientists faced with a shortage of funds, he has learned to economize. He has taken up skin diving to collect sea urchins for his studies, thereby cutting down on purchases. Despite the financial handicaps he encounters constantly at Talledega, Dr. Bacon said the professional contacts and exposure to modern currents of research made possible by institute participation have been "invaluable."

He adds that the 1971 biomedical institute "got me out of my rut" of not pursuing research. Most important in the way of personal stimulus, he said, was realizing the "scope and magnitude of the things that can be done" in research.

In addition to the biomedical institute, which has run for three summers and enrolled 36 college teachers, two other institutes have been held. In 1971, the Livermore physics department sponsored a program attended by eight teachers from San Francisco Bay Area high schools with predominantly minority enrollments. As in the biomedical institute, the physics institute participants—who commuted to Livermore daily—heard lectures and engaged in research projects, often using sophisticated and costly scientific tools such as the laboratory's nuclear reactor and nuclear acceleration and radiation detection apparatus. Projects ranged from explora-



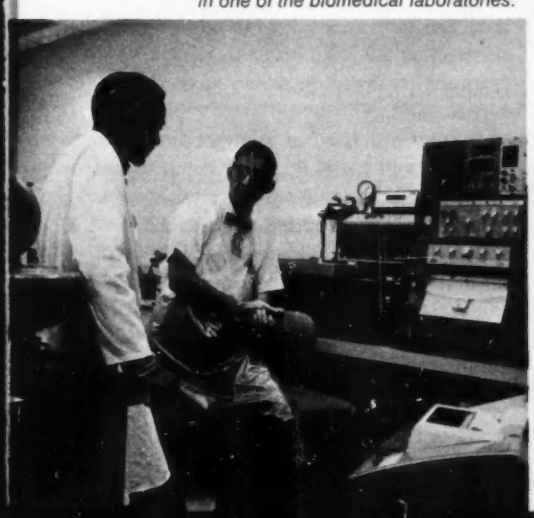
High school teachers participating in the physics institute are shown Livermore's linear accelerator, one of the world's most sophisticated scientific tools for physics research using neutrons and gamma rays.

tion of the atomic nucleus to pollution monitoring.

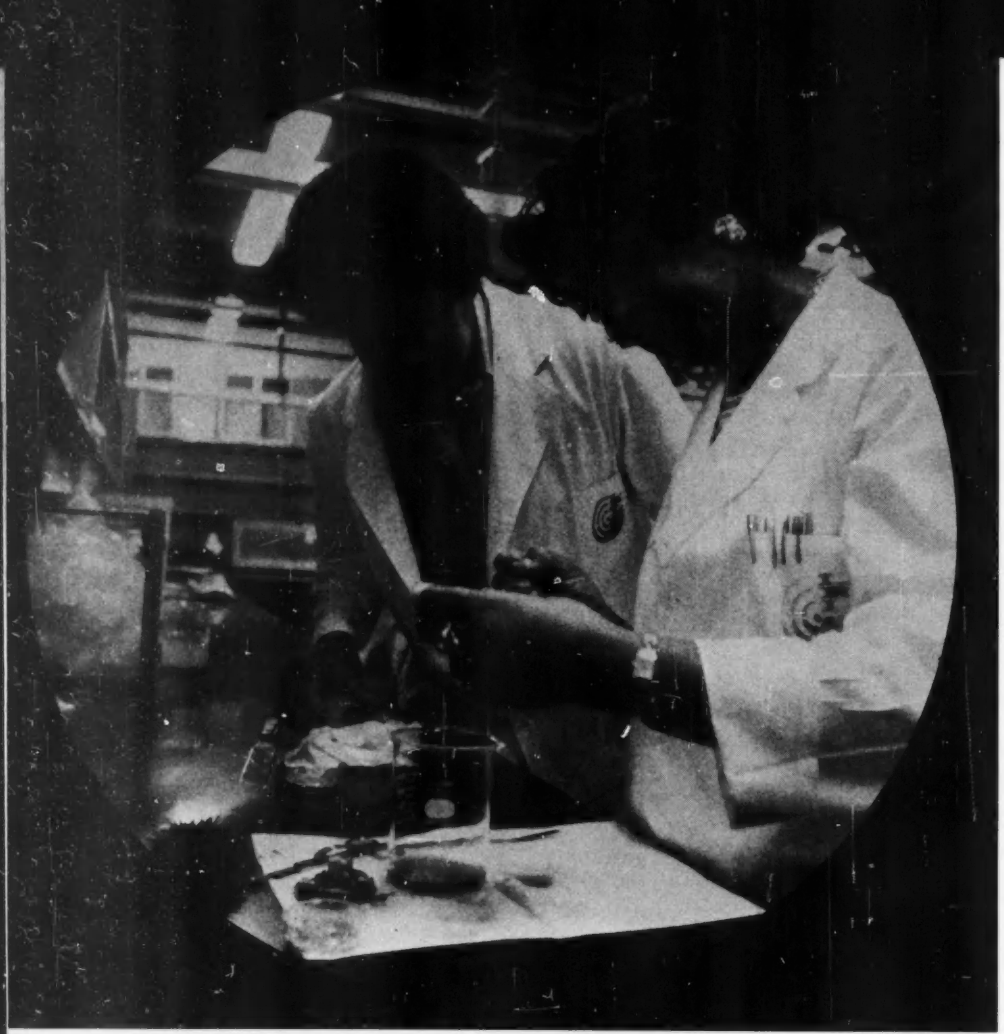
And last summer, running concurrently with the biomedical institute, a computer institute was organized for 10 teachers from small colleges which plan to establish modern computer centers and computer science courses. The focus was on administration and organization. "At Livermore, we could introduce these teachers to virtually every sort of computational experience," explains Dr. Mel Harrison, deputy head of the computation department and the man in charge of the institute. "We use small, medium, and large computers. We apply them to administrative, engineering, and scientific tasks. We have experts in organization, programing, and troubleshooting."

The success of the computer institute has to be measured in the incentives and insights it gave participants. Small college faculty return to small budgets and staffs regardless of their experience at Livermore, which has one of the world's most powerful computer facilities. John Fend-

Development of a method for measuring the composition of DNA, a genetically important molecule, was one of the summer institute projects of Dr. Leonard Price (left) of Xavier University. Here he discusses his work with Livermore staff scientist Dr. Fred Hatch in one of the biomedical laboratories.



Morgan State College professor Morton W. Huber's activities at the summer institute included preparing part of an experiment exploring the effects of low doses of radiation on the genetic structure of cells.



During their summer at Livermore, Drs. Wilma D. Segars of Norfolk State College and Arthur L. Bacon of Talledega College worked on techniques for growing the cells of sea urchin embryos in isolated cultures.

Science *continued*

Dr. Segars checks a student's work during a class at Norfolk State.

rich, assistant mathematics professor at South Carolina State College in Orangeburg, points out that his school cannot yet be considered to have a computer center, although it recently was given a medium-sized computer by a private firm. The "memory" of the new machine will have to be expanded before it can handle today's sophisticated computer programs.

Nevertheless, Professor Fendrich—who like other computer institute members had "very little or no experience with computers before this summer"—now has "the confidence to go ahead and teach a formal course in elementary computer science, programing, computer language, that sort of thing." He believes the summer's experience has enabled him to demonstrate the practical applications of computers to his students, either by using South Carolina State's new machine or by showing how a larger center would approach a major, time-consuming problem in mathematics.

The main focus of the institutes has been on scientific work, which by its very nature entails some late hours. The computer institute, with its emphasis on familiarizing visiting teachers with operation of computers, probably came closest to a 40-hour workweek, but even that involved some overtime. Professor Fendrich, for example, frequently went to the lab an hour or so early to try out computer programs before the day's rush began. Professor Segars can remember more than one midnight spent in biomedical laboratories.

After 3 years, the institutes show every sign of being a viable and valuable supplement to conventional equal employment opportunity programs. Participant evaluations have welcomed the academic stimulation they found at Livermore and stressed the residual benefits in both teaching and research upon returning to their home schools. Livermore supervisors working with the participants found the experience benefited them.

Praise has even come from some who did not participate. A biology department chairman in a small southeastern school wrote to Dr. Smith when one of his faculty members returned after a summer in Livermore: "The program was an exceptionally good one and one in which the participant obtained a great deal of information and experience in the area of biomedical investigation. His activities there will certainly aid our programs of research and teaching here."

But the most gratifying praise has come from the visiting teachers themselves. "To see worked out in laboratories what I teach from textbooks all year is a most rewarding experience," wrote one young biochemistry professor at summer's end last year. "It will certainly make me a better, more confident, and more knowledgeable teacher, with a better appreciation of man's limited knowledge in many areas of biochemistry. My interest and desire for learning and doing research in biochemistry has been heightened by this summer's experience." □

Publications

Following is a selected list of publications on manpower and related matters. Single copies of Manpower Administration and Bureau of Labor Statistics publications for which no price is indicated can be obtained free by writing or telephoning the appropriate organization at the following addresses: Manpower Administration, U.S. Department of Labor, Washington, D.C. 20210; Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. 20212. Please enclose a self-addressed label with all requests for free publications. For publications not available free, write the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, or the organization specified in the listing, and enclose payment.

The Retail Trade

Manpower Administration book contains detailed job descriptions for 45 different department store occupations. Intended primarily for use by counselors, but written in style to be understood by those with high school reading ability. 50 cents.

Training Rural Supervisors

Manpower Administration pamphlet points out ways in which farm and nonfarm employers in rural areas can build a motivated, capable, productive work force and keep these workers despite the drawing power of urban jobs.

Labor Conditions and Labor Organizations in the Philippine Islands

Bureau of Labor Statistics digest of labor organizations in the Philippine Islands—their structure, principal officers, membership, and international affiliation as of early 1972.

Railroad Technology and Manpower in the 1970's

Bureau of Labor Statistics bulletin describes changes in technology in railroad industry; projects their impact on productivity, employment, and occupational requirements; and discusses methods of adjustment. Specify Bulletin 1717. $1.00.

Low-Income Labor Markets and Urban Manpower Programs: A Critical Assessment

Manpower Administration report summarizes findings of an 18-month study of the Concentrated Employment Program (CEP) in Boston. Explores dynamic relationship between manpower programs and the economic and social environments in which they operate.

JOBS Upgrading

Manpower Administration and National Alliance of Businessmen booklet contains all information necessary for an employer to develop a JOBS Upgrading Program contract proposal. The purpose of the new JOBS Program is to help alleviate the problems of people who work full time but remain in near poverty due to low wages and limited possibilities for advancement.

Occupational Employment Statistics, 1960-70

Bureau of Labor Statistics booklet presents national occupational estimates by industry for the 1960-70 period derived from a variety of sources. Specify Bulletin 1738. 50 cents.

Career Leaflets

A series of 10 Bureau of Labor Statistics leaflets, each of which discusses briefly a particular type of career and how to prepare for it. The leaflets cover biology, English, foreign languages, liberal arts, mathematics, office jobs, outdoor jobs, repairman or mechanic, science, and social science.

Indexes of Output Per Man-Hour, Selected Industries, 1972 Edition

Bureau of Labor Statistics bulletin updates industry indexes of output per man-hour and output per employee for industries currently included in U.S. Government's productivity measurement program. Data cover years 1939 and 1947-71. Indexes for the metal cans and bakery products industries are included for the first time. Specify Bulletin 1758. $1.50.

National Survey of Professional, Administrative, Technical, and Clerical Pay, June 1971

Bulletin summarizes results of Bureau of Labor Statistics annual salary survey of selected professional, administrative, technical, and clerical occupations in private industry which span a wide range of duties and responsibilities. Specify Bulletin 1742. 75 cents.

Industry Wage Surveys

Summaries of results of Bureau of Labor Statistics surveys of wages and supplementary benefits in specific industries.

Candy and Other Confectionery Products, August 1970. Specify Bulletin 1732. 45 cents.

Women's and Misses' Coats and Suits, August 1970. Specify Bulletin 1728. 35 cents.

Scheduled Airlines, August 1970. Specify Bulletin 1734. 45 cents.

Nonferrous Foundries, June 1970. Specify Bulletin 1726. 50 cents.

Men's and Boys' Suits and Coats, April 1970. Specify Bulletin 1716. $1.00.

Paints and Varnishes, November 1970. Specify Bulletin 1739. 60 cents.

Men's and Boys' Separate Trousers, January 1971. Specify Bulletin 1752. 60 cents.

Communications, 1970. Specify Bulletin 1751. 30 cents.

Textile Dyeing and Finishing, December 1970. Specify Bulletin 1757. 70 cents.

Petroleum Refining, April 1971. Specify Bulletin 1741. 50 cents.

Cigarette Manufacturing, May-June 1971. Specify Bulletin 1738. 30 cents.

Scientists and Engineers in the Federal Personnel System

Civil Service Commission pamphlet designed to help the science and engineering manager keep in mind the whole range of special staffing resources available to him in developing a good laboratory environment. Details recruitment procedures and discusses the position classification and training opportunities. 40 cents.

Planning for Nursing Needs and Resources

A 200-page National Institutes of Health volume to guide factfinding and planning for nursing resources. First part presents principles and methods of procedure for creating an individual plan suited to an individual geographic entity for beneficial change in its nursing conditions. Other three parts are appendixes containing extensive references to nursing survey reports; planning tools; and statistical data. $2.00. Single copies available free from Division of Nursing, Public Health Service, 9000 Rockville Pike, Bethesda, Md. 20014.

Minority Group Employment in the Federal Government

A 69-page Civil Service Commission report on a census in all States except Hawaii of minority group workers in Federal Government as of May 31, 1970. Includes Negroes, Spanish-surnamed persons, American Indians, Orientals, and, in Alaska, Aleuts and Eskimos. 70 cents.

Science, Engineering, and Related Career Hints (SEARCH)

A 48-page bibliography of guidance literature for students and counselors interested in scientific and technical fields, divided into 36 career categories listed alphabetically. A companion publication, 48-page *Test Yourself for Science*, demonstrates scientific reasoning with a number of problems and puzzles for students. Includes sources of additional information about careers in science. Available from Scientific Manpower Commission, 2101 Constitution Ave., NW., Washington, D.C. 20418. $1.00 each, $1.25 for both.

NTA Digest

National Institutes of Health booklet prepared as a slide presentation for potential participants in programs authorized under the Nurse Training Act of 1971. Available free from Division of Nursing, 9000 Rockville Pike, Bethesda, Md. 20014.

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A rare opportunity to observe at first hand—and to put into use—the latest in research equipment and techniques has been given to a group of teachers from predominantly minority schools each summer since 1970 by the University of California's Lawrence Livermore Laboratory. It's all part of an effort aimed at *Sparking Minority Interest in Science*. The story begins on page 28 in this issue of MANPOWER.

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